

California

Mathematics

3

Reteach and Skills Practice Workbook

Contents Include:

- 117 reteach worksheets—
one for each lesson
- 117 skills practice worksheets—
one for each lesson to reinforce
each reteach concept

California
Mathematics
3

**Reteach and Skills
Practice**

TO THE STUDENT This *Reteach and Skills Practice Workbook* gives you additional examples and problems for the concept exercises in each lesson. The exercises are designed to help you study mathematics by reinforcing important skills needed to succeed in the everyday world. The materials are organized by chapter and lesson, with one Reteach and one Skills Practice worksheet for every lesson in *California Mathematics, Grade 3*.

Always keep your workbook handy. Along with your textbook, daily homework, and class notes, the completed *Reteach and Skills Practice Workbook* can help you in reviewing for quizzes and tests.

TO THE TEACHER These worksheets are the same ones found in the Chapter Resource Masters for *California Mathematics, Grade 3*. The answers to these worksheets are available at the end of each Chapter Resource Masters booklet.



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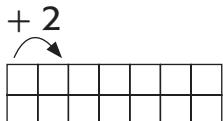
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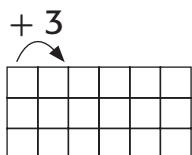
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1-1**Reteach****3NS1.1****Number Patterns**

When looking for a pattern, see how the next number changes.



2, 4, 6, 8. What is the pattern? Add 2.



3, 6, 9, 12, 15. What is the pattern? Add 3.

Identify the pattern. Then find the missing numbers.

1. 5, _____, 15, _____, 25, _____

2. 10, 20, _____, 40, _____, _____

3. 100, 90, _____, 70, _____, _____

4. 322, _____, _____, 325, _____

5. 25, 125, _____, 325, _____, _____

6. Each student in the class has a hat collection. If the pattern continues, how many hats will Erik and Alissa have?

Thomas

Kristen

Ryan

Collette

Erik _____

Alissa _____

Skills Practice*Number Patterns***Identify the pattern. Then find the missing numbers.**

1. 5, _____, 15, _____, 25, _____
2. 6, 8, 10, _____, 14, _____, _____
3. 75, _____, 65, 60, _____
4. 7, 10, _____, 16, _____, 22
5. 105, 110, _____, 120, _____
6. 96, 94, _____, _____, 88

Solve.

7. Dylan collects 4 more cans for the recycling center than the day before. If the pattern continues, how many cans will he collect on Thursday and Friday?

Monday	6
Tuesday	10
Wednesday	14
Thursday	
Friday	

8. Sharika wants to do 3 more sit-ups each day. If she continues, how many sit-ups will she do on Saturday and Sunday?

Wednesday	52
Thursday	55
Friday	58
Saturday	
Sunday	

*Problem-Solving Strategy***The Four-Step Plan**

Kayla's game piece is on box 40 of a gameboard. She moves it ahead 20 boxes two times. Where is her game piece now?

Step 1 Understand	<p>What facts do you know?</p> <p>What do you know? Kayla starts on _____. She moves her game piece ahead _____ boxes _____ times.</p> <p>What do you need to find?</p>
Step 2 Plan	<p>To find out where Kayla's game piece is, start with 40 and add 20 two times.</p>
Step 3 Solve	<p>Use your plan to solve the problem.</p> <p>Start at 40.</p> <p>Add 20.</p> <p>$40 + 20 = 60$</p> <p>Add 20.</p> <p>$60 + 20 = 80$</p> <p>Kayla's game piece is on box _____.</p>
Step 4 Check	<p>Check your solution to make sure it makes sense.</p> <p>Explain why your answer make sense.</p>

Reteach**3MR1.1, 3NS2.1***Problem-Solving Strategy (continued)***Solve. Use the four-step plan.**

1. Pablo started a game with 650 points. He lost 300 points.
How many points did he have at the end of the game?

What facts do you know? _____

Plan what you will do and in what order. _____

Use your plan to solve the problem. _____

Check your solution to make sure it makes sense.

2. Rosa ends a game with 600 points. Tyler has 200 more points than Rosa. How many points does Tyler have?

What facts do you know? _____

Plan what you will do and in what order. _____

Use your plan to solve the problem. _____

Check your solution to make sure it makes sense. _____

*Problem-Solving Strategy***Solve. Use the *four-step plan*.**

1. Stephen hits a target worth 60 points. He then hits a target worth 5 points three times. How many points does Stephen have now?

2. Javier has 500 points. Daniel has 200 points less than Javier. Kevin has 300 points more than Daniel. Who is the winner?

3. Amber buys a toy for 62¢. She gives the clerk three quarters. What is her change?

4. Austin starts with \$400 in play money. In three rounds of a game, Austin wins \$10 in each round. How much money does Austin have after those three rounds?

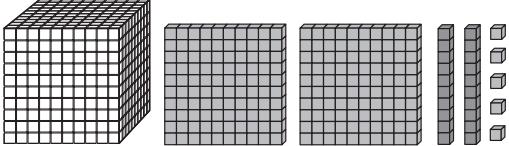
5. Luke scores 450 points in the first round, 100 points in the second round, and 400 points in the third round. Does he score more than 1,000 points? How many points does he have?

6. Ricardo has 340 points. He has one turn left. The record is 410 points. If Ricardo scores 60 more points, how many points will he have? Will he break the record? Explain.

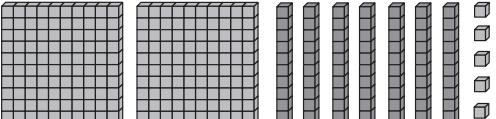
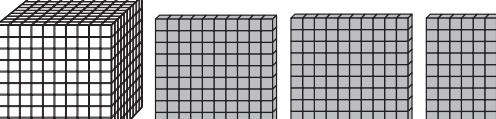
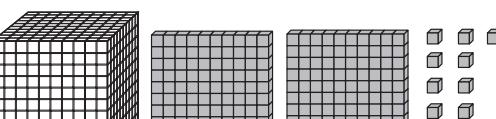
1–3**Reteach****3NS1.3, 3NS1.5****Place Value through 1,000**

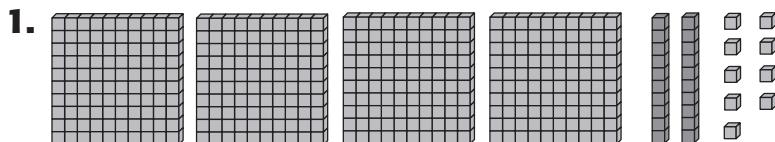
You can write numbers in *expanded form*, *standard form*, and *word form*.

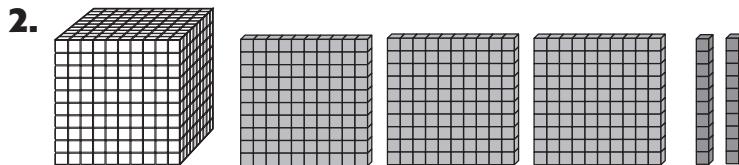
The models show 1,225.

 <p>1 thousand 2 hundreds 2 tens 5 ones</p>	<p>Expanded Form: $1,000 + 200 + 20 + 5$</p> <p>Standard Form: 1,225</p> <p>Word Form: one thousand, two hundred twenty-five</p>
--	--

Look at the model. Write the number in the three forms.

	<p>Expanded form: _____</p> <p>Standard form: _____</p> <p>Word form: _____</p>
	<p>Expanded form: _____</p> <p>Standard form: _____</p> <p>Word form: _____</p>
	<p>Expanded form: _____</p> <p>Standard form: _____</p> <p>Word form: _____</p>

Skills Practice*Place Value through 1,000***Write each number in *standard form*.**



3. $600 + 50 + 7$ _____

4. $5 + 30 + 400 + 2,000$ _____

5. six hundred nine _____

6. two thousand eighty _____

Write each number in *word form*.

7. 374 _____

8. 3,800 _____

Write each number in *expanded form*.

9. 293 _____

10. 4,190 _____

11. 2,050 _____

12. 3,704 _____

1-4

Name _____

Date _____

Reteach**3NS1.3, 3NS1.5***Place Value through 10,000*

You can use a chart to find the place value of each digit in a number. Look at the number in the chart below. Then see how to write the number in expanded form and in standard form.

Ten Thousands	Thousands	Hundreds	Tens	Ones
7	8	6	3	5

Expanded Form:

$$70,000 + 8,000 + 600 + 30 + 5$$

(The place value of 7 is ten thousands. It has a value of 70,000.)

Standard Form: 78,635

Write the number 57,981 in the place value chart. Then write the number in *expanded form*.

1.

Ten Thousands	Thousands	Hundreds	Tens	Ones

Expanded Form: _____

Now, write the value of each underlined digit.

2. 32,897 _____3. 32,897 _____4. 32,897 _____5. 32,897 _____

Hint: Think about the expanded form of 32,897.

Skills Practice*Place Value through 10,000***Write the place of each underlined digit. Then write its value.****1.** 554 _____**2.** 78,998 _____**3.** 43,066 _____**4.** 7,443 _____**5.** 5,608 _____**6.** 45,887 _____**7.** 876 _____**8.** 93,405 _____**Write the value of the 6 in each number.****9.** 65 _____**10.** 36,898 _____**11.** 35,615 _____**12.** 27,061 _____**13.** 67,422 _____**14.** 6,423 _____**Write the digit in each place named.****15.** 4,521 (hundreds) _____**16.** 45,013 (thousands) _____**17.** 98,641 (tens) _____**18.** 77,611 (hundreds) _____**19.** 75,092 (ten thousands) _____**20.** 23,026 (ten thousands) _____**21.** 32,001 (ones) _____**22.** 1,309 (tens) _____

*Problem-Solving Investigation***Use the Four-Step Plan**

Tammy baked 32 muffins for her class picnic. Her dog ate some of them, and now Tammy only has 24 muffins left. How many did her dog eat?

Step 1 Understand	<p>Make sure you understand the problem.</p> <p>What do you know? Tammy baked _____ muffins. She has _____ muffins left.</p> <p>What do you need to find? _____</p>
Step 2 Plan <ul style="list-style-type: none"> • Use the four-step plan 	<p>Make a plan.</p> <p>You know Tammy baked 32 muffins. You know she has 24 muffins left.</p> <p>You can demonstrate this by drawing the number of muffins and putting an <i>x</i> through one muffin at a time until you are left with 24.</p> <p>The number of <i>x</i> marks tells you how many muffins the dog ate.</p>
Step 3 Solve	<p>Carry out your plan.</p> <p>Draw 32 muffins.</p> <p>Put an <i>x</i> through one muffin at a time until you are left with 24.</p> <p>Count the <i>x</i> marks. There are 8. So, the dog ate 8 muffins.</p>
Step 4 Check	<p>Is the solution reasonable?</p> <p>Reread the problem.</p> <p>How can you check your answer? _____</p>

*Problem-Solving Investigation (continued)***Solve using the *four-step plan*.**

1. Tanya bought a book for her father's birthday that cost \$21. She paid the cashier with \$25. How much change did Tanya receive?

2. Will found a plate of orange slices in the kitchen. He ate 4 of them. When he counted the slices, there were 18 left. How many orange slices were on the plate to start with?

3. Pablo started a game with 65 points. He lost 20 points. How many points did he have at the end of the game?

4. Meg ends a game with 60 points. Ted has 30 points more than Meg. How many points does Ted have?

5. Sean and his brother ate some pizza. The pizza had 12 slices. They each had 3 slices. How many slices were left?

6. Lindsey saw 3 movies at the theater with her friend Emma. If another friend joined them for one movie, how many tickets were bought altogether?

*Problem-Solving Investigation***Solve using the *four-step plan*.**

1. Jamie has 545 points in a game. Darren has 431 points. How many more points does Jamie have than Darren?

2. Javier wants to practice soccer twice as long as he did the day before. If he practiced for 10 minutes yesterday, how long will Javier practice today?

3. Travis plans to use a new fish hook every two days on his camping trip. If the trip lasts 12 days, how many fish hooks will Travis use?

4. Henry bought 2 shirts at \$3 each. How much did he spend in all?

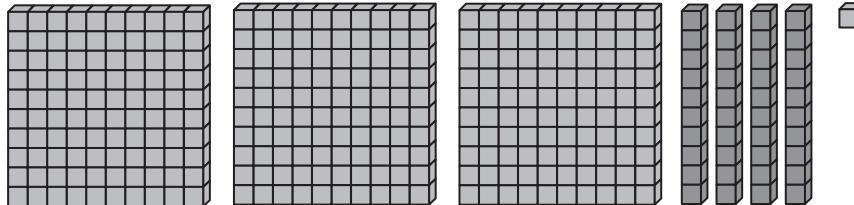
5. In Gabriella's picture, she has made every third item a star. If her picture contains 18 items, how many of them are stars?

6. Write a problem that you solve using the four-step plan.

Compare Numbers

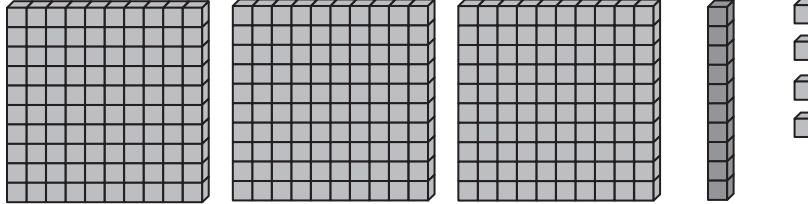
Which number is less, 341 or 314?
Look at the model for each number.

341



Compare the models.

314



Hundreds: 3 (The same for each model)

Tens: 1 (Different for each model)

1 ten is less than 4 tens.

Say: 314 is less than 341.

Write: $314 < 341$.

Compare. Write $>$, $<$, or $=$.

1. $754 \bigcirc 745$

2. $80 \bigcirc 80$

3. $347 \bigcirc 744$

4. $735 \bigcirc 753$

5. $301 \bigcirc 310$

6. $679 \bigcirc 697$

7. $518 \bigcirc 581$

8. $919 \bigcirc 991$

9. $880 \bigcirc 808$

10. $445 \bigcirc 454$

*Compare Numbers***Compare. Write $>$, $<$, or $=$.**

1. $43 \text{ } \bigcirc \text{ } 34$

2. $808 \text{ } \bigcirc \text{ } 808$

3. $876 \text{ } \bigcirc \text{ } 678$

4. $432 \text{ } \bigcirc \text{ } 423$

5. $39 \text{ } \bigcirc \text{ } 93$

6. $85 \text{ } \bigcirc \text{ } 58$

7. $293 \text{ } \bigcirc \text{ } 329$

8. $227 \text{ } \bigcirc \text{ } 272$

9. $\$455 \text{ } \bigcirc \text{ } \453

10. $564 \text{ } \bigcirc \text{ } 654$

11. $\$123 \text{ } \bigcirc \text{ } \231

12. $\$515 \text{ } \bigcirc \text{ } \515

13. $900 \text{ } \bigcirc \text{ } 800$

14. $661 \text{ } \bigcirc \text{ } 616$

15. $670 \text{ } \bigcirc \text{ } 677$

16. $202 \text{ } \bigcirc \text{ } 220$

17. $\$397 \text{ } \bigcirc \text{ } \367

18. $424 \text{ } \bigcirc \text{ } 422$

Solve.

19. Grace has 460 songs downloaded on her computer. Beth has 406 songs. Who has more songs?

20. Alex has 256 stamps in his collection. Brent has 289. Who has fewer stamps?

21. Kelly has 600 seeds. Maria has 425 seeds. Does Maria need more or fewer seeds to have the same amount as Kelly?

22. Mia took 47 pictures on her vacation. Theresa took 10 more pictures than Mia. How many pictures did Theresa take?

Order Numbers

A box has 285 bags of marbles, 346 games, and 279 checkers. Order the numbers from greatest to least.

To compare numbers in the hundreds, first compare the hundreds and then the tens. Finally compare the ones if needed.

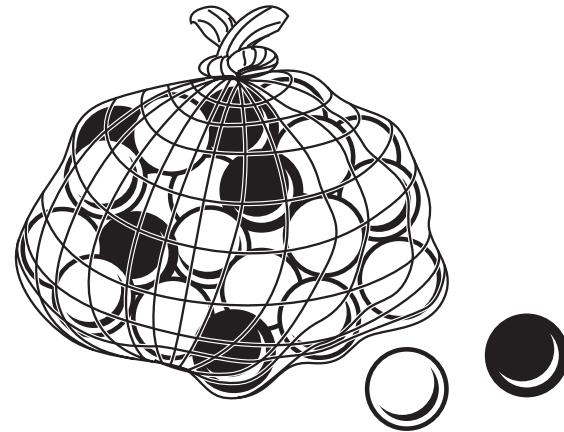
Step 1
Compare the hundreds.

279
346 ← most hundreds
285
 $3 > 2$

Step 2
Compare the tens.

279
285 ← more tens
 $8 > 7$

Since there are no more numbers to compare, you do not need to compare the ones.



Step 3
Put the amounts in order from *greatest* to *least*.

346
285
279

Order the numbers from *least* to *greatest*.

1. 3,456 3,565 3,446 _____
2. 1,606 1,609 1,669 _____
3. 8,009 8,909 8,099 _____

Order the numbers from *greatest* to *least*.

4. 6,589 6,879 6,599 _____
5. 5,668 5,887 5,688 _____
6. 3,033 3,003 3,330 _____

Skills Practice**3NS1.2***Order Numbers***Order the numbers from *greatest to least*.**

1. 822; 1,304; 877 _____

2. 6,423; 3,654; 6,236 _____

3. 8,000; 8,001; 8,100 _____

4. 3,343; 3,453; 4,352 _____

5. 9,019; 9,110; 9,919 _____

6. 5,909; 9,509; 5,919 _____

7. 1,564; 1,643; 1,765 _____

8. 2,443; 4,324; 2,344 _____

Order the numbers from *least to greatest*.

9. 1,879; 1,289; 1,978 _____

10. 5,103; 5,310; 1,531 _____

11. 6,445; 6,544; 4,655 _____

12. 4,455; 5,444; 4,545 _____

13. 7,776; 7,667; 6,776 _____

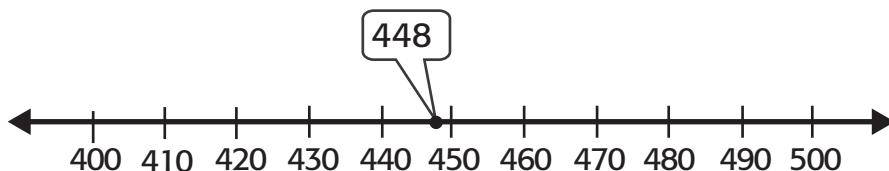
14. 3,990; 3,997; 3,799 _____

15. 2,220; 2,202; 2,022 _____

16. 2,993; 9,239; 2,393 _____

Round to the Nearest 10 and 100

You can use a number line to help you round numbers. Round 448 to the nearest ten and to the nearest hundred.



448 is closer to 450 than to 440.

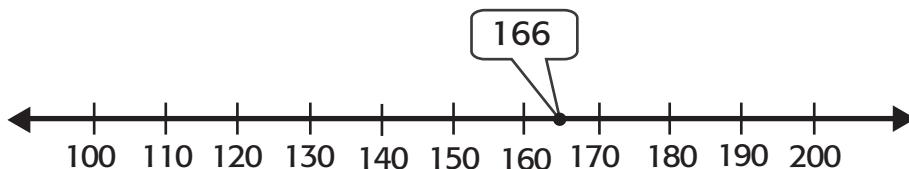
To the nearest ten, 448 rounds to 450.

448 is closer to 400 than to 500.

To the nearest hundred, 448 rounds to 400.

Round each number to the nearest ten and nearest hundred. Use a number line to help you.

1. 166 ten _____ hundred _____



2. 709 ten _____ hundred _____

3. 185 ten _____ hundred _____

4. 234 ten _____ hundred _____

5. 561 ten _____ hundred _____

6. 478 ten _____ hundred _____

*Round to the Nearest 10 and 100***Round to the nearest ten.****1.** 37 _____**2.** 17 _____**3.** 388 _____**4.** 68 _____**5.** 243 _____**6.** 566 _____**7.** 59 _____**8.** 254 _____**9.** 934 _____**Round to the nearest hundred.****10.** 218 _____**11.** 343 _____**12.** 5,617 _____**13.** 532 _____**14.** 777 _____**15.** 1,855 _____**16.** 715 _____**17.** 1,233 _____**18.** 5,787 _____**Find the missing digit to make the sentence true.****19.** 6 8 rounds to 630. _____**20.** 2 8 rounds to 250. _____**21.** 52 rounds to 800. _____**22.** 4,5 3 rounds to 4,600. _____**23.** 9 3 rounds to 940. _____**24.** 3 5 rounds to 370. _____**Solve.****25.** Carlos has 37 CDs in his music collection. To the nearest ten, how many CDs does Carlos own?

26. Nathan scored 2,349 points playing a video game. To the nearest hundred, how many points did he score?

1–9**Reteach****3NS1.4***Round to the Nearest 1,000*

Use a place-value chart to help you round numbers.

Round 7,485 to the nearest thousand.

Thousands	Hundreds	Tens	Ones
7	4	8	5

To round to the nearest thousand, look at the hundreds place.

The number of hundreds is less than 5. Round down to 7,000.

Round to the nearest thousand.**1.**

Thousands	Hundreds	Tens	Ones
5	8	3	4

2.

Thousands	Hundreds	Tens	Ones
3	0	4	8

3.

Thousands	Hundreds	Tens	Ones
1	9	1	6

4.

Thousands	Hundreds	Tens	Ones
4	5	2	0

5. 2,466 _____**6.** 2,335 _____**7.** 1,290 _____**8.** 7,022 _____**9.** 6,690 _____**10.** 7,988 _____**11.** 4,703 _____**12.** 5,824 _____**13.** 3,915 _____**14.** 9,152 _____**15.** 8,619 _____**16.** 6,397 _____

Skills Practice*Round to the Nearest 1,000***Round to the nearest thousand.**

1. 1,600 _____

4. 5,790 _____

7. 38,288 _____

2. 5,689 _____

5. 4,560 _____

8. 5,604 _____

3. 3,334 _____

6. 15,699 _____

9. 2,298 _____

Use data from the table for problems 10–13.

Road Trips	
<i>Trips</i>	<i>Distance</i>
Trip A	2,925 mi
Trip B	1,730 mi
Trip C	2,598 mi
Trip D	3,407 mi

10. What is the distance of Trip D rounded to the nearest thousand?

11. Which trip has a distance of about 2,000 miles?

12. What is the distance of Trip C rounded to the nearest thousand?

13. What is the distance of Trip C rounded to the nearest thousand?

Addition Properties

You can use different strategies to help you add.

Commutative Property

You can change the order of the addends, but the sum is always the same.

$$4 + 5 = 9$$

$$5 + 4 = 9$$

Identity Property

When you add 0 to a number, the sum is always that number.

$$6 + 0 = 6$$

Associative Property

You can group the addends and keep the sum the same.

$$\begin{array}{ll} (2 + 4) + 6 & 2 + (4 + 6) \\ 6 + 6 & 2 + 10 \\ 12 & 12 \end{array}$$

Fill in the blank.

1. If you know $3 + 6 = \underline{\hspace{2cm}}$, then you know $\underline{\hspace{2cm}} + 3 = \underline{\hspace{2cm}}$.

2. If you know $8 + 0 = \underline{\hspace{2cm}}$, then you know $\underline{\hspace{2cm}} + 8 = \underline{\hspace{2cm}}$.

3. If you know $(5 + 6) + 4 = \underline{\hspace{2cm}}$, then you know

$$5 + (\underline{\hspace{2cm}} + 4) = \underline{\hspace{2cm}}$$

Find each sum.

4. $4 + 7 = \underline{\hspace{2cm}}$

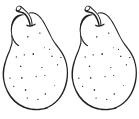
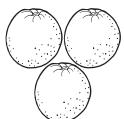
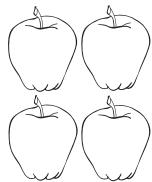
5. $9 + 2 = \underline{\hspace{2cm}}$

6. $7 + 5 = \underline{\hspace{2cm}}$

7. $3 + 9 = \underline{\hspace{2cm}}$

8. $12 + 5 = \underline{\hspace{2cm}}$

9. $0 + 4 = \underline{\hspace{2cm}}$

Skills Practice*Addition Properties*

How many pieces of fruit are pictured above?

$$4 + 3 + 2 = 9 \text{ pieces of fruit}$$

We can get the same result by using addition properties.
Fill in the missing numbers below, using each property.

A. Commutative: $4 + 3 + 2 = 2 + 4 + 3 = \underline{\hspace{2cm}}$

B. Identity: $0 + \underline{\hspace{2cm}} = 9$

C. Associative: $(4 + 3) + 2 = \underline{\hspace{2cm}} + (\underline{\hspace{2cm}} + 2) = 9$

Find each missing number. Identify the property shown.

1. $220 + 0 = \underline{\hspace{2cm}}$

2. $14 + 4 = 18$

$$4 + \underline{\hspace{2cm}} = 18$$

3. $8 + (2 + 5) + 3 = (8 + 2) + (5 + 3) = \underline{\hspace{2cm}}$

Find each sum mentally.

4.
$$\begin{array}{r} 2 \\ + 3 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 6 \\ + 2 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 4 \\ + 6 \\ \hline \end{array}$$

Problem-Solving Skill

Sometimes when you solve a problem you need an *exact answer*. Other times you need an *estimate*. Deciding if you need an exact answer or an estimate will help you solve the problem. Let's try an example.

In an hour's time, Leah can make 12 greeting cards. Steven can make 9 cards in the same amount of time. Together, *about* how many cards can they make?

Step 1

Understand What facts do you know?

- Leah makes 12 cards in an hour.
- Steven makes 9 cards in an hour.

Step 2

Plan

Do you need an *exact* answer to this question?

No. When you see *about*, you know that an *estimated* answer is needed.

Step 3

Solve

First, round each number.

Leah 12 cards → 10 cards

Steven 9 cards → 10 cards

Now, add both of your rounded numbers. This will give you a final estimate.

$$10 + 10 = 20$$

So, Leah and Steven can make about 20 greeting cards in an hour.

Step 4

Check

Look back at the problem. Since it says "about how many," you know that making an estimate is the correct plan. Notice that since $12 + 9 = 21$, your estimate is very close to the exact answer!

*Problem-Solving Skill (continued)***Tell whether an estimate or an exact answer is needed.****Then solve.**

1. On Saturday, Zachary's sister works in the garden for 2 hours and earns \$5 every hour. For mowing the lawn, Zachary is paid \$12. Who will earn more money?

2. The Littleton Public Library gets 37 new magazines and books every week. In 2 weeks, about how many books and magazines will be received?

3. Last week, Ms. Llamas spent \$62 for gas and \$85 for repairs on her car. About how much did she spend on her car?

4. Raul cut 2 pieces of fabric. One piece was 12 inches long. Another piece was 41 inches long. Will Raul have enough fabric for a project that needs 67 inches of fabric? Explain.

5. About how much money would Katie need to buy the following items at the grocery store?

Toy 1	32¢
Toy 2	24¢

Problem-Solving Skill

**Tell whether an estimate or an exact answer is needed.
Then solve.**

1. Chan is learning about dinosaurs. The head and body of Chan's favorite dinosaur is 36 feet long, and the tail is 19 feet long. In all, how long is the entire dinosaur?

2. Jasmine and Casey are in charge of bringing fruit for the class picnic. There are 34 students in their class. Jasmine and Casey buy 11 apples, 6 oranges, 7 bananas, and 8 peaches. Will there be enough for everyone to have one piece of fruit? Explain.

3. For Exercise 2, use estimation to see whether or not Jasmine and Casey will have enough fruit for the class. Is estimation a good way to solve this problem?

4. There are 75 chairs at the concert. Four chairs are broken. How many people can sit on chairs at the concert?

5. Twenty-six babies are born every day at the Pine Valley Hospital. In 2 days, about how many babies will be born there?

2–3**Reteach****3NS1.4****Estimate Sums**

Estimation can be a very useful tool. The Corner News Stand sold 122 newspapers on Monday and 94 newspapers on Tuesday. *About* how many newspapers were sold in all? Rounding will help you find the answer to this problem.

Corner News Stand		
	Actual amount	Round to the nearest 100
Monday	122	100
Tuesday	94	100
Estimated Total		200

About 200 newspapers were sold on these two days.

Front-end estimation is another way to find an approximate sum. At the community center, 36 people are swimming and 54 people are playing golf. *About* how many people are there in all?

Use the front digits, and change the other digits to 0.

$$36 \rightarrow 30$$

$$54 \rightarrow 50$$

$$30 + 50 = 80$$

So, there are about 80 people at the community center.

Estimate each sum using rounding.

1. $49\text{¢} + 23\text{¢}$ _____

2. $59 + 32$ _____

Estimate each sum using front-end estimation.

3. $\$77 + \66 _____

4. $26 + 59$ _____

*Estimate Sums***Estimate each sum using rounding.**

1. $95 + 31$ _____

2. $16 + 12$ _____

3. $90 + 85$ _____

4. $39 + 78$ _____

5. $42 + 61$ _____

6. $22 + 84$ _____

Estimate each sum using front-end estimation

7. $50 + 86$ _____

8. $47 + 24$ _____

9. $98 + 81$ _____

10. $45 + 85$ _____

11. $24 + 76$ _____

12. $83 + 31$ _____

Solve.

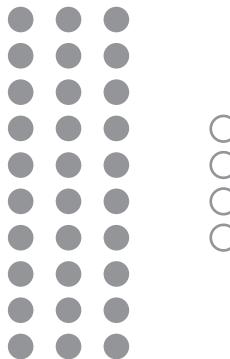
13. Kayla collects animal pictures. So far, she has 27 horse pictures and 12 pictures of bears. About how many pictures does she have now?

14. This week the school store sold 39 pencils and 12 folders. About how many pencils and folders did the school store sell this week?

Two-Digit Addition

The left side of a two-digit number tells us how many tens we have, while the digit on the right shows how many ones we have.

For example, if you have 34 marbles, you have 3 groups of ten marbles and 4 marbles.



If a friend gives you 7 more marbles, you can add 6 of them to your group of 4 marbles ($4 + 6 = 10$) to make another ten-marble group. Since ($7 - 6 = 1$), you will have one marble left over. Using your pencil, add the marbles to the chart above.

Looking at the chart, it is easy to see that you now have 41 marbles.

Add. Check for reasonableness.

1. $37 + 2 =$ _____

7. $52 + 9 =$ _____

2. $18 + 36 =$ _____

8. $66 + 6 =$ _____

3. $41 + 6 =$ _____

9. $43 + 9 =$ _____

4. $33 + 16 =$ _____

10. $77 + 3 =$ _____

5. $12 + 19 =$ _____

11. $34 + 7 =$ _____

6. $50 + 8 =$ _____

12. $51 + 11 =$ _____

Skills Practice**3NS2.1***Two-Digit Addition***Add. Check for reasonableness.**

1. $32 + 12 =$ _____

2. $12 + 17 =$ _____

3. $45 + 25 =$ _____

4. $38 + 16 =$ _____

5. $31 + 22 =$ _____

6. $29 + 50 =$ _____

ALGEBRA Find each missing digit.

7. $72 + 2 \square = 94$

8. $3 \square + 37 = 76$

9. $\square 0 + 46 = 96$

10. $83 + 3 \square = 121$

11. $\square 6 + 54 = 150$

12. $5 \square + 27 = 84$

13. $\square 4 + 31 = 75$

14. $11 + \square 6 = 97$

Solve.

15. For a family picnic, Javier bought 18 peaches, and his sister bought 24 apples. How many pieces of fruit did they buy?

16. Alondra's science class planted 29 zinnia seeds and 31 marigold seeds. What is the total number of seeds they planted?

Add Money

When you add cents, it is just like adding one- or two-digit numbers, except that you put a cent sign (¢) after each number. Adding dollars is just the same, but a dollar sign (\$) is written before each number.

Samantha opened her piggy bank and found 75¢ inside. If she has 8¢ in her pocket, how much money does she have?

Add 75¢ + 8¢.

A. Here is one way to find the sum.

$$\begin{array}{r} 1 \\ 75\text{¢} \\ + 8\text{¢} \\ \hline 83\text{¢} \end{array}$$

B. Here is another way to write the problem. Use a decimal point to separate dollars and cents. Notice that 8¢ is now written \$0.08, because there is nothing in the tenths (dimes) place.

$$\begin{array}{r} 1 \\ \$0.75 \\ + \$0.08 \\ \hline \$0.83 \end{array}$$

Samantha has a total of 83¢.

Add. Use estimation to check for reasonableness.

1. 12¢
 $+ 77\text{¢}$
 \hline

2. 45¢
 $+ 27\text{¢}$
 \hline

3. $\$0.01$
 $+ \$0.49$
 \hline

4. $\$65$
 $+ \$16$
 \hline

5. $\$15$
 $+ \$23$
 \hline

6. $\$28$
 $+ \$31$
 \hline

Skills Practice*Add Money***Add. Use estimation to check for reasonableness.**

1. $83\text{¢} + 12\text{¢} =$ _____

2. $45\text{¢} + 45\text{¢} =$ _____

3. $\$72 + \$14 =$ _____

4. $\$0.33 + \$0.27 =$ _____

5. $\$0.50 + \$0.01 =$ _____

6. $\$0.05 + \$0.79 =$ _____

7. $23\text{¢} + 26\text{¢} =$ _____

8. $\$30 + \$27 =$ _____

9. $\$70 + \$12 =$ _____

10. $61\text{¢} + 11\text{¢} =$ _____

11. $\$0.23 + \$0.38 =$ _____

12. $\$84 + \$43 =$ _____

Solve. Use the table for Exercises 13 and 14.

Clothing Outlet	
Pullovers	\$18
Tennis shoes	\$25
Socks	\$4
Swimsuits	\$35

13. Lalia wants to buy a swimsuit and a pair of tennis shoes. How much would that cost?

14. Justin is buying a pullover and a pair of socks. How much will these cost?

15. Alanzo wants to buy a basketball that costs \$15 and a T-shirt that costs \$14. How much will he spend in all?

Problem-Solving Investigation

The bookshelf at Sarah's house has 3 shelves. Each shelf can hold 15 books. Sarah has 17 books. Ed has 19 books. Jen has 10 books. Will all of their books fit on the bookshelf?

There is a lot to organize and understand in this problem. Use a *four-step plan*.

Step 1

Understand

You know how many books each of the 3 shelves will hold, and how many books each person has.

Step 2

Plan

There is a lot of information, so make a table.

Step 3

Solve

Shelf	Books on Shelf	Books left over?	Space on shelf?
Shelf 1 (Sarah)	15	2	no
Shelf 2 (Ed)	15	4	no
Shelf 3 (Jen)	10	0	yes—for 5 books

Sarah has 2 books left over and Ed has 4 books left over.

$$2 + 4 = 6$$

There is room for 5 books on Jen's shelf. Since 6 is greater than 5, all of their books will not fit.

Step 4

Check

Look back at the problem.

Problem-Solving Investigation (continued)

$15 + 15 + 15 = \underline{\hspace{2cm}}$, so $\underline{\hspace{2cm}}$ books can fit on the bookshelf.

$17 + 19 + 10 = \underline{\hspace{2cm}}$. Since $46 > 45$, one book will be left over.

Solve.

1. Students were growing plants in science class. So far, 4 plants have flowered: 2 plants have 3 flowers each, and 2 plants have 6 flowers each. Find the total number of flowers.

2. Every year, Daniel's mother volunteers about 245 hours in the hospital. In 2 years, about how many hours of volunteer work will she do?

3. There are 15 cards in one box and 64 cards in another box. How many cards are there in all?

4. There are 31 students in Miss Strom's class and 27 students in Miss Wilson's class. About how many students are there in all?

*Problem-Solving Investigation***Solve.**

1. Delmar's school has collected money for charity. They collected \$47 from Mrs. Johnson's class and \$52 from Mr. King's class. How much money do they have in all?

2. For Garrett's birthday party, he is bringing 2 bags of cookies to school. Each bag contains 24 cookies. How many cookies are there in all?

3. Bill has \$0.34 in his pocket. Amanda has \$0.54 in her pocket. An apple costs \$0.85. If they combine their money, can they buy the apple to share? Explain.

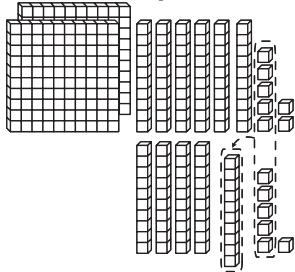
4. In one aquarium, there are 22 minnows. In another aquarium, there are 27 snails. About how many pond animals are there?

2-7**Reteach****3NS2.1, 3NS3.3***Three-Digit Addition*

You can use models to add.

Add $267 + 46$.**Step 1**

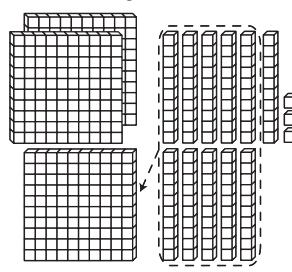
Add the ones. Regroup if necessary.



$$\begin{array}{r}
 1 \\
 267 \text{ Think: 13 ones} = \\
 + 46 \text{ 1 ten, 3 ones} \\
 \hline
 \end{array}$$

Step 2

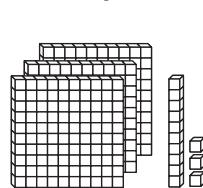
Add the tens. Regroup if necessary.



$$\begin{array}{r}
 11 \\
 267 \text{ Think: 11 tens} = \\
 + 46 \text{ 1 hundred, 1 ten} \\
 \hline
 \end{array}$$

Step 3

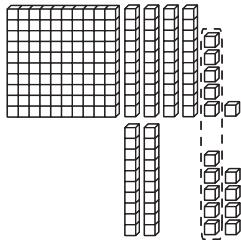
Add the hundreds. Regroup if necessary.



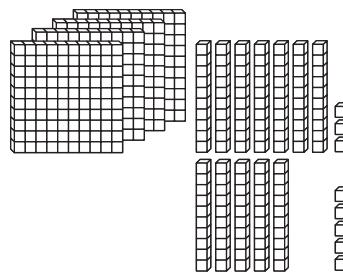
$$\begin{array}{r}
 11 \\
 267 \text{ Think: 1 hundred +} \\
 + 46 \text{ 2 hundreds =} \\
 \hline
 \text{3 hundreds}
 \end{array}$$

Find each sum. Use models to help.

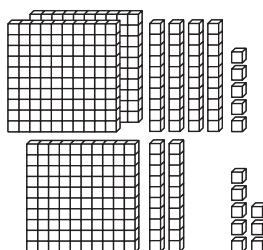
$$\begin{array}{r}
 1 \\
 146 \\
 + 29 \\
 \hline
 \end{array}$$



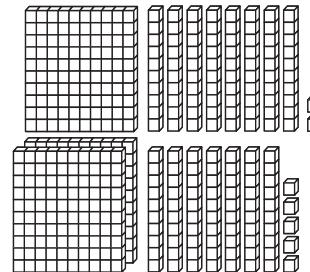
$$\begin{array}{r}
 2 \\
 473 \\
 + 55 \\
 \hline
 \end{array}$$



$$\begin{array}{r}
 3 \\
 245 \\
 + 128 \\
 \hline
 \end{array}$$



$$\begin{array}{r}
 4 \\
 182 \\
 + 275 \\
 \hline
 \end{array}$$



Skills Practice**3NS2.1, 3NS3.3***Three-Digit Addition***Find each sum. Use estimation to check for reasonableness.**

1. $\$5.75 + \1.85 _____

2. $49 + 13$ _____

3. $342 + 208$ _____

Solve.

4. $661 + 99$ _____

5. $\$7.78 + \7.16 _____

6. $144 + 67$ _____

7. $711 + 193$ _____

8. $682 + 39$ _____

9. For a PTA meeting at the Parkvale Elementary School, the principal has ordered 215 muffins and 155 bagels. How many muffins and bagels were there in all?

10. In February, Lucinda read a book that was 98 pages long. In March, she read a book that was 124 pages long. How many pages did she read in February and March?

11. Miranda's sunflower plants grew 27 inches in the first month and 37 inches the second month. How tall were Miranda's sunflowers after two months?

Add Greater Numbers

Adding two- and three-digit numbers is just like adding four-digit numbers.

Read the problem.

One mile is equal to 5,280 feet. Hunter went on a nature hike. First, he hiked one mile, and then he hiked another 1,323 feet. How many feet did he hike? One way to find the sum is by regrouping. First, estimate to the nearest thousand.

$$5,280 \rightarrow \underline{\hspace{2cm}}$$

$$+ 1,323 \rightarrow \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

Now, find the exact answer.

Step 1

Add the ones.

$$0 + 3 = \underline{\hspace{2cm}}$$

Step 2

Add the tens.

$$8 + 2 = \underline{\hspace{2cm}}$$

Regroup as a hundred.

Step 3

Add the hundreds.

$$[1] + 2 + 3 = \underline{\hspace{2cm}}$$

Step 4

Add the thousands.

$$5 + 1 = \underline{\hspace{2cm}}$$

So, Hunter hiked _____ feet on the nature hike.

Find each sum. Use estimation to check for reasonableness.

1. $349 + 1,223 = \underline{\hspace{2cm}}$

2. $\$48.28 + \$31.84 = \underline{\hspace{2cm}}$

3. At Cliffside Park, there are 121 maple trees and 382 oak trees. How many trees are in the park?

Skills Practice*Add Greater Numbers***Find each sum. Use estimation to check for reasonableness.**

1. $328 + 5,908$ _____

2. $448 + 561$ _____

3. $\$57.25 + \27.80 _____

4. $806 + 1,220$ _____

5. $302 + 1,445$ _____

6. $1,833 + 289$ _____

7. $\$43.78 + \12.34 _____

8. $\$1.59 + \22.37 _____

9. $933 + 1,005$ _____

10. $231 + 8,304$ _____

Solve

11. In a survey, students were asked which job they would prefer. These were the results:

Scientist	1,295
Writer	93

Estimate how many students participated in the survey.

12. Rachel is running in a cross-country race. She bought running shorts for \$29.13 and running shoes for \$42.93. How much did she spend?

13. Last year, Jake cleaned his room for 3,120 minutes and mowed the lawn for 305 minutes. How long did he work?

3-1**Reteach****3NS2.1****Two-Digit Subtraction****When you want to compare numbers, you subtract.****Example** Find $16 - 3$.**Step 1** Model 16.

$$\begin{array}{r} 16 \\ - 3 \\ \hline 6 \text{ ones} - 3 \text{ ones} = 3 \text{ ones} \end{array}$$

Step 2 16 Subtract the **tens**.

$$\begin{array}{r} 16 \\ - 3 \\ \hline 1 \text{ tens} - 0 \text{ tens} = 1 \text{ ten.} \\ 13 \end{array}$$

So, $16 - 3 = 13$.**When there are not enough ones to subtract from, you need to regroup.****Example** Find $14 - 8$.**Step 1** Model 14.

$$\begin{array}{r} 14 \\ - 8 \\ \hline 8 \text{ ones} > 4 \text{ ones, so regroup.} \end{array}$$

Step 2 Regroup 1 tens into 10 ones.

$$\begin{array}{r} 14 \\ - 8 \\ \hline 10 \text{ ones} + 4 \text{ ones} = 14 \text{ ones} \\ \text{Subtract } 14 \text{ ones} - 8 \text{ ones} = 6 \text{ ones} \\ 6 \end{array}$$

Step 3 Subtract the **tens**.

$$\begin{array}{r} 14 \\ - 8 \\ \hline 0 \text{ tens} - \text{no tens} = 0 \text{ tens} \\ 06 \end{array}$$

So, $14 - 8 = 6$.**Subtract. Check your answer.**

1. 37

$\underline{- 3}$

2. 49

$\underline{- 7}$

3. 82

$\underline{- 9}$

4. 31

$\underline{- 6}$

5. 77

$\underline{- 8}$

6. 63

$\underline{- 9}$

7. 54

$\underline{- 3}$

8. 22

$\underline{- 1}$

Skills Practice*Two-Digit Subtraction***Subtract. Check your answer.**

1. $68 - 9 =$ _____

2. $33 - 23 =$ _____

3. $75 - 6 =$ _____

4. $49 - 9 =$ _____

5. $22 - 3 =$ _____

6. $66 - 15 =$ _____

7. $85 - 3 =$ _____

8. $11 - 7 =$ _____

9. $37 - 28 =$ _____

10. $90 - 22 =$ _____

11. $55 - 6 =$ _____

12. $30 - 24 =$ _____

13. $17 - 13 =$ _____

14. $82 - 23 =$ _____

15. $47 - 8 =$ _____

16. $90 - 3 =$ _____

17. Tess has 42 jars of paint. She gave 13 jars to Penny. How many were left for herself?

18. Retta is 43 inches tall. Her brother is 52 inches tall. What is the difference in their heights?

19. Kiyo had \$21 when she went to the shopping center. On her trip, she purchased a new alarm clock. If she returned home with \$8, how much was the alarm clock?

3-2**Reteach****3NS1.4, 3NS2.1***Estimate Differences*

To estimate a difference, round each number and then subtract.

Round to the nearest ten.

$$51 - 27$$

↓ ↓

$$50 - 30 = 20$$

Round to the nearest hundred.

$$913 - 496$$

↓ ↓

$$900 - 500 = 400$$

Estimate each difference. Show how you rounded.

1. $91 - 38$

↓ ↓

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

2. $86 - 39$

↓ ↓

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

3. $809 - 485$

↓ ↓

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

4. $886 - 150$

↓ ↓

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

5. $801 - 118$

↓ ↓

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

6. $911 - 138$

↓ ↓

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

Estimate. Round to the nearest ten.

7. $63 - 28$ _____

8. $82 - 69$ _____

9. $85 - 29$ _____

10. $63 - 19$ _____

Estimate. Round to the nearest hundred.

11. $709 - 371$ _____

12. $545 - 172$ _____

13. $924 - 115$ _____

14. $770 - 585$ _____

Skills Practice*Estimate Differences***Estimate each difference using rounding.**

1. $73 - 27$ _____

2. $91 - 65$ _____

3. $685 - 193$ _____

4. $947 - 831$ _____

5. $45 - 19$ _____

6. $54 - 38$ _____

7. $615 - 315$ _____

8. $725 - 199$ _____

9. $881 - 350$ _____

10. $862 - 498$ _____

11. $519 - 383$ _____

12. $550 - 295$ _____

13. $703 - 376$ _____

14. $902 - 829$ _____

15. $909 - 788$ _____

16. $833 - 499$ _____

17. $890 - 690$ _____

18. $931 - 786$ _____

19. $58 - 27$ _____

20. $92 - 18$ _____

21. $468 - 179$ _____

22. $705 - 280$ _____

23. $932 - 239$ _____

24. $850 - 176$ _____

25. $48 - 27$ _____

26. $650 - 403$ _____

Solve.

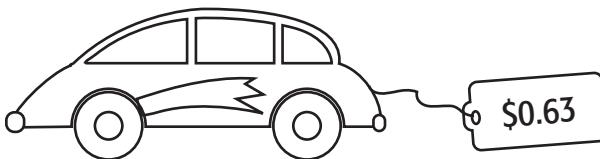
27. The tree in Sue's backyard is 72 feet tall. The tree in Joe's backyard is 87 feet tall. About how much taller is the tree in Joe's backyard?

28. Amy's favorite tree is 67 feet tall. Another tree is 35 feet shorter than Amy's favorite tree. About how tall is the other tree?

Subtract Money

Subtracting money is similar to subtracting whole numbers.

Sometimes, you need to regroup. James wants to buy a toy car that costs \$0.63. He only has \$0.37. How much more money does he need to buy the car?



Cost: \$0.63

$$\begin{array}{r}
 513 \\
 \$0.63 \text{ Regroup 63 as 5 tens and 13 ones} \\
 - \$0.37 \\
 \hline
 \$0.26
 \end{array}$$

Amount James has: \$0.37

So, James needs \$0.26 more to buy the car.

Subtract.

1. $\$0.87 - \0.38

2. $\$0.92 - \0.64

3. $\$0.35 - \0.16

4. $\$0.52 - \0.28

5. $\$0.69 - \0.55

6. $\$0.48 - \0.29

Skills Practice*Subtract Money***Subtract.**

1. $\$0.38 - \$0.29 =$ _____

2. $85\text{¢} - 37\text{¢} =$ _____

3. $\$0.58 - \$0.42 =$ _____

4. $55\text{¢} - 46\text{¢} =$ _____

5. $\$0.74 - \$0.36 =$ _____

6. $\$72 - \$35 =$ _____

7. $\$0.88 - \$0.44 =$ _____

8. $\$42 - \$29 =$ _____

Solve.

9. Ross buys a game for \$84. He gives the cashier \$90. How much change does he get?

10. Tawana buys a toy for \$66. She gives the cashier \$80. How much change did the cashier give her?

11. Annie bought some shirts and paid with two \$20-bills. The cashier gave Annie \$16 in change. How much did the shirt cost?

12. Howard bought two sandwiches for \$4 each. He gave the cashier two \$5-bills. How much change did he get?

*Problem-Solving Skill***Reasonable Answers**

After you solve a problem, it is important to check if your answer makes sense. One way to check if your answer is reasonable is to use estimates.

Use this exercise to learn more about checking whether an answer is reasonable.

Jorge has 243 baseball cards, and 198 cards are infielders. Jorge thinks he has about 50 outfielder cards. Is this reasonable?

Understand	You know there are 243 cards. You know that 198 cards are infielder cards. You need to find out if 50 outfielder cards is a reasonable answer.
Plan	Choose a strategy. You are finding part of a group. You will estimate and subtract to find about how many cards are left. You will also subtract to find the exact answer.
Solve	First, estimate by rounding to the nearest 10. $243 - 198$ turns into $240 - 200 = 40$ Then subtract. $243 - 198 = 45$
Check	Look back at the problem. Jorge's guess was that he had 50 outfielder cards. That is close to the estimate of 40. Jorge's guess is reasonable. Also check your answer by working the problem backward: $45 + 198 = 243$ Since 243 is the number you started your subtraction with, your answer is correct.

Problem-Solving Skill *(continued)***Solve. Check for reasonableness.**

1. Angel's family is having dinner. The pizza delivery will cost \$12. Angel has one \$20-bill to pay for the pizza. Is it reasonable for Angel to expect about \$10 in change from the delivery person? _____

Use estimates to explain.

3. Vanessa kicked the soccer ball at the goal 117 times yesterday. She kicked the ball 112 times today. Is it reasonable for Vanessa to say that she kicked the ball about 300 times? _____

Explain.

5. Adrian estimates that he will need to bring 90 cookies for the third-grade picnic. There are 32 students in room 1, 31 students in room 2, and 31 students in room 3. Is 90 cookies a reasonable estimate? _____

Explain.

2. Holly wants to buy her 3 favorite movies. They cost \$19, \$16, and \$18. She estimates that she will need \$60 to buy the 3 movies. Is this a reasonable estimate? _____

Explain.

4. Greg read 10 books last week and 12 books this week. Is it a reasonable estimate to say that he read 20 books? _____

Explain.

6. Jacqueline wants to buy a book and a CD. The book is \$4. The CD is \$13. She estimates \$15 will be enough money. Is this a reasonable estimate? _____

Explain.

*Problem-Solving Skill***Solve. Check for reasonableness.**

1. On Monday 321 people came for a craft show. On Tuesday 619 people came. Is it reasonable to say about 300 more people came to the craft show on Tuesday? _____

Explain. _____

2. Seth's class took a poll to find out what weekend activities people enjoy. The table below shows their answers.

playground	8
movie	4
friend over	12
be with family	8

Seth estimated that about half his class likes to spend time with their families. Is this reasonable? _____

Explain. _____

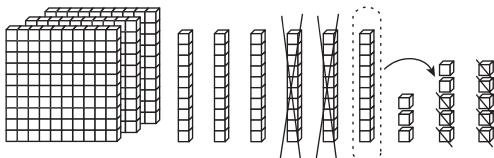
3. Using Seth's class poll, is it reasonable to say that most of the class likes to have friends over or spend time with family?

Explain. _____

4. Dominique called her grandmother 17 times in July. She estimates that she called about half the days in July. Is this reasonable? _____

Explain. _____

Name _____ Date _____

3-5**Reteach****3NS2.1, 3MR3.1***Three-Digit Subtraction with Regrouping***You can use models to help you regroup when you subtract.**

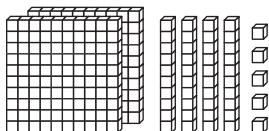
$$\begin{array}{r}
 & 5 & 13 \\
 & \cancel{6} & 3 \\
 - & 28 & \\
 \hline
 & 335 &
 \end{array}$$

Remember:

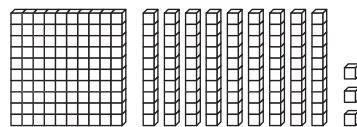
- Regroup 1 ten as 10 ones.
- Rename 63 as 5 tens 13 ones.

Use models to subtract.

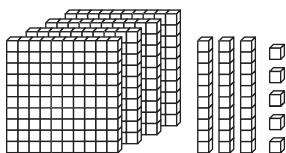
1. $245 - 19 =$ _____



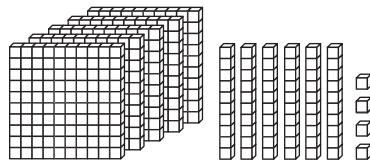
2. $193 - 44 =$ _____



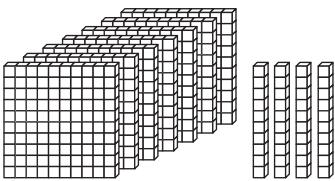
3. $435 - 219 =$ _____



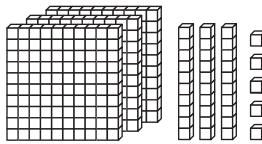
4. $564 - 228 =$ _____



5. $740 - 426 =$ _____



6. $335 - 127 =$ _____

**Subtract. Check your answer.**

7. $962 - 722 =$ _____ 8. $681 - 361 =$ _____ 9. $750 - 136 =$ _____

10. $435 - 219 =$ _____ 11. $865 - 839 =$ _____ 12. $942 - 927 =$ _____

Skills Practice*Three-Digit Subtraction with Regrouping***Subtract. Check your answer.**

1. $597 - 318 =$ _____

2. $270 - 121 =$ _____

3. $464 - 128 =$ _____

4. $743 - 206 =$ _____

5. $632 - 427 =$ _____

6. $560 - 335 =$ _____

7. $823 - 426 =$ _____

8. $936 - 319 =$ _____

9. $448 - 329 =$ _____

10. $840 - 321 =$ _____

ALGEBRA Find each missing digit.

11.
$$\begin{array}{r} 51\square \\ - 31\square \\ \hline 19\square \end{array}$$

12.
$$\begin{array}{r} \square 32 \\ - 2\square 9 \\ \hline 1\square 3 \end{array}$$

13.
$$\begin{array}{r} \square 11 \\ - 22\square \\ \hline 3\square 2 \end{array}$$

14.
$$\begin{array}{r} 74\square \\ - 15\square \\ \hline 58\square \end{array}$$

15.
$$\begin{array}{r} 3\square 6 \\ - 1\square 8 \\ \hline \square 68 \end{array}$$

16.
$$\begin{array}{r} \square 42 \\ - 31\square \\ \hline 12\square \end{array}$$

Problem-Solving Investigation

Sometimes you can solve a problem using more than one strategy. You must choose the strategy that works best for you when solving the problem.

Use this exercise to learn more about choosing a strategy to solve a problem.

Tristan has \$4.35. If he buys a ball for \$2.13, how much money does he have left?

Understand	<p>What do you know?</p> <ul style="list-style-type: none"> • You know Tristan has \$4.35. • You know Tristan spent \$2.13. <p>What do you need to find?</p> <ul style="list-style-type: none"> • You need to find out how much money Tristan has left.
Plan	<p>A four-step plan is a good way to solve many problems.</p> <p>When you read the problem to find out what information you know, circle key facts or words and underline what you need to find out.</p> <p>Since you need to find how much money is left, subtract.</p>
Solve	<p>First take the money Tristan started with: \$4.35</p> <p>Subtract what he spent: \$2.13</p> <p>To find what is left: $4.35 - 2.13 = 2.22$</p>
Check	<p>Prove your answer:</p> <p>Look at the problem again. Work backward to check:</p> <p>$2.22 + 2.13 = 4.35$</p>

*Problem-Solving Investigation (continued)***Practice**

Use any strategy shown below to solve. Tell what strategy you used.

- Estimate or an exact answer
- Reasonable answer
- Four-Step Plan

1. The animal shelter rescued 57 animals after the storm.

Now there are 862 animals at the shelter.

How many animals were there before the storm? _____

What strategy did you use? _____

2. Mrs. Connolly hid 115 prizes around the school. She

gave her students clues to solve. Her students found 82 prizes. About how many prizes are still missing? _____

What strategy did you use? _____

3. Two cans of paint come in a box. Trevor saw a sign that

says each can of paint costs \$27. About how much will the box of paints cost? _____

What strategy did you use? _____

4. Natalie started the day with 178 bags of trail mix.

Now she has 50 bags of trail mix left. Is it reasonable to say she gave away about 130 bags of trail mix? _____

What strategy did you use? _____

5. Connor's grandfather gave him 87 baseball cards. Now

he has 576 cards. How many cards did he have before his grandfather gave him more cards? _____

What strategy did you use? _____

6. Sabrina has \$8.35. She spent \$6.74 at the store.

How much money does she have left? _____

What strategy did you use? _____

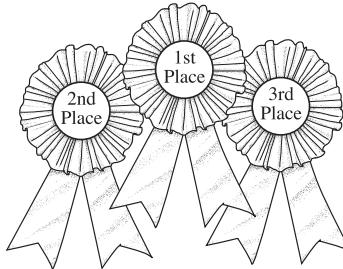
*Problem-Solving Investigation***Use any strategy shown below to solve. Tell what strategy you used.**

- Estimate or an exact answer
- Reasonable answer
- Four-Step Plan

1. Mariah earned 43 ribbons from swim meets this month.

Now she has 756 ribbons in all. How many ribbons did she have before this month? _____

What strategy did you use? _____



2. Brad walks up 53 steps to get home. There are 211 steps

to the top of his building. How many more steps would Brad have to walk up to get to the top floor? _____

What strategy did you use? _____

3. A crate of oranges costs \$14.62. A crate of apples costs \$13.75. How much does a crate of oranges and a crate of apples cost in all? _____

What strategy did you use? _____

4. Blake has saved 612 papers since his first day of school. His sister has saved 48 papers so far.

About how many more papers has Blake saved? _____

What strategy did you use? _____

5. Mrs. Martinez bought groceries for \$47.

Then she bought pet food for \$26. She thinks she spent about \$100. Is this reasonable? _____

What strategy did you use? _____

*Subtract Greater Numbers***Find $6,426 - 3,278$.****Subtract the ones.**

Regroup if necessary.

2 tens 6 ones = 1 ten 16 ones

Subtract the tens.

Regroup if necessary.

4 hundreds 1 ten = 3 hundreds 11 tens

Subtract the hundreds and thousands.

Thousands	Hundreds	Tens	Ones
	3	11	16
6	4	2	6
- 3	2	7	8
3	1	4	8

Subtract. Check each answer.

1. $4,685$
 $- 1,279$

2. $9,354$
 $- 1,953$

3. $6,527$
 $- 432$

4. $8,711$
 $- 7,338$

5. $6,345$
 $- 5,732$

6. $8,832$
 $- 448$

7. $4,213$
 $- 2,999$

8. $9,595$
 $- 1,396$

9. $6,762$
 $- 3,883$

10. $9,136$
 $- 457$

11. $8,447 - 4,191 =$ _____

12. $6,229 - 5,337 =$ _____

13. $8,674 - 482 =$ _____

14. $1,373 - 998 =$ _____

15. $7,147 - 2,639 =$ _____

16. $9,521 - 3,587 =$ _____

17. $5,212 - 1,999 =$ _____

18. $6,222 - 2,730 =$ _____

19. $8,315 - 798 =$ _____

20. $7,445 - 655 =$ _____

21. $4,123 - 1,432 =$ _____

22. $3,228 - 625 =$ _____

*Subtract Greater Numbers***Subtract. Check your answer.**

1.
$$\begin{array}{r} 6,387 \\ - 192 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 6,217 \\ - 3,860 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 9,817 \\ - 2,087 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 1,754 \\ - 382 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 3,498 \\ - 2,567 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 4,891 \\ - 975 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 3,165 \\ - 1,620 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 9,315 \\ - 4,928 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 4,646 \\ - 2,995 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 6,635 \\ - 669 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 5,662 \\ - 325 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 8,250 \\ - 766 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 3,426 \\ - 2,839 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 5,163 \\ - 3,886 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 7,546 \\ - 787 \\ \hline \end{array}$$

16. $4,998 - 3,912 =$ _____

17. $8,270 - 5,092 =$ _____

18. $5,123 - 987 =$ _____

19. $7,654 - 6,666 =$ _____

20. $4,325 - 998 =$ _____

21. $6,172 - 85 =$ _____

22. $6,286 - 5,375 =$ _____

23. $5,052 - 2,448 =$ _____

ALGEBRA Write + or - to make a true number sentence.

24. $8,734 \bigcirc 4,292 = 4,442$

25. $687 \bigcirc 474 = 1,161$

26. $8,132 \bigcirc 983 = 9,115$

27. $8,225 \bigcirc 6,334 = 1,891$

Solve.

28. On a parade float, there are 3,732 red roses and 1,850 white roses. How many more red roses are there?

29. Of the 4,258 roses on another float, 680 were wilted. How many were not wilted?

Subtract Across Zeros

You can use place-value charts to help you regroup across zeros.

Find 305 – 176.

Step 1

Subtract the ones.
No tens to regroup.
Regroup the hundreds.

Hundreds	Tens	Ones
2	10	5
3	0	5
– 1	7	6

Step 2

Regroup the tens.

Hundreds	Tens	Ones
2	9	5
3	10	5
– 1	7	6

Step 3

Subtract the ones,
tens, and hundreds.

Hundreds	Tens	Ones
2	9	5
3	10	5
– 1	7	6
	1	2
		9

Subtract. Check your answer.

1. 106
 $\underline{- 28}$

2. $\$503$
 $\underline{- \$167}$

3. 405
 $\underline{- 218}$

4. $\$601$
 $\underline{- \$378}$

5. 200
 $\underline{- 145}$

6. 205
 $\underline{- 92}$

7. 308
 $\underline{- 175}$

8. 300
 $\underline{- 56}$

9. $\$505$
 $\underline{- \$90}$

10. 802
 $\underline{- 132}$

11. $500 - 418 =$ _____

12. $\$206 - \$138 =$ _____

13. $801 - 482 =$ _____

14. $100 - 33 =$ _____

15. $607 - 527 =$ _____

16. $\$700 - \$19 =$ _____

17. $\$902 - \$863 =$ _____

18. $400 - 189 =$ _____

Skills Practice*Subtract Across Zeros***Subtract. Check your answer.**

1.
$$\begin{array}{r} 503 \\ - 82 \\ \hline \end{array}$$

2.
$$\begin{array}{r} \$607 \\ - \$238 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 730 \\ - 467 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 901 \\ - 719 \\ \hline \end{array}$$

5.
$$\begin{array}{r} \$309 \\ - \$223 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 208 \\ - 75 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 305 \\ - 161 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 400 \\ - 286 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 504 \\ - 316 \\ \hline \end{array}$$

10.
$$\begin{array}{r} \$700 \\ - \$199 \\ \hline \end{array}$$

11. $103 - 45 = \underline{\hspace{2cm}}$

12. $\$901 - \$333 = \underline{\hspace{2cm}}$

13. $800 - 65 = \underline{\hspace{2cm}}$

14. $702 - 618 = \underline{\hspace{2cm}}$

15. $205 - 74 = \underline{\hspace{2cm}}$

16. $700 - 412 = \underline{\hspace{2cm}}$

17. $607 - 31 = \underline{\hspace{2cm}}$

18. $800 - 433 = \underline{\hspace{2cm}}$

Solve.19. A bag holds 300 seeds. Brandon plants 79 of the seeds. How many seeds are left?
_____20. A book about gardening has 504 pages. Amy has read 245 pages so far. How many more pages does she have left to read?
_____21. The cafeteria has 300 chairs. There are only 271 people sitting in the chairs. How many chairs are empty?
_____ chairs22. There were 902 movie tickets at the ticket booth. Now, there are only 129 tickets left. How many tickets have been sold?
_____ tickets

Algebra: Expressions and Number Sentences

An **expression** uses numbers and symbols to make a math statement. Here are some examples of expressions:

$$6 + 8 \qquad 5 - 2 + 10 \qquad 12 - 5$$

A **number sentence** uses an equals sign to show that two expressions are equal. Here are some examples of true number sentences:

$$7 + 8 = 15 \qquad 5 + 2 + 1 = 8 \qquad 15 - 5 = 10$$

Write an expression and a number sentence for each problem. Then solve.

1. A Douglas fir tree is 100 meters tall. A Ponderosa pine tree is 68 meters tall. How much taller is the Douglas fir than the Ponderosa pine?

What is the expression?

What is the number sentence?

The Douglas fir is _____ meters taller than the Ponderosa pine.

2. Tony's Garden Supplies sells \$525 worth of plants. The store also sells \$234 worth of supplies. How much money does the store make in all?

3. A tree farm has 248 balsam fir trees and 96 Douglas fir trees. How many more balsam firs are there than Douglas firs?

Skills Practice*Algebra: Expressions and Number Sentences*

Write an expression and a number sentence for each problem. Then solve.

1. A black spruce tree is 32 feet tall. An Engelmann pine tree is 110 feet tall. How much taller is the Engelmann pine than the black spruce?

2. A live oak tree is 48 feet tall. A California white oak tree is 42 feet taller. How tall is the California white oak?

3. The garden club raises \$123 for a community garden. The club spends \$78 on supplies. How much money does the garden club have left?

4. Nadia's garden has a length of 45 feet and a width of 32 feet. How much longer is the length than the width?

Tell whether + or – makes each number sentence true.

5. $8 \bigcirc 1 = 4 + 3$

6. $521 + 10 = 20 \bigcirc 511$

7. $5 - 1 = 3 \bigcirc 1$

8. $701 \bigcirc 23 = 663 + 15$

9. $12 \bigcirc 5 = 10 + 7$

10. $16 + 14 = 50 \bigcirc 20$

11. $15 \bigcirc 9 = 3 + 3$

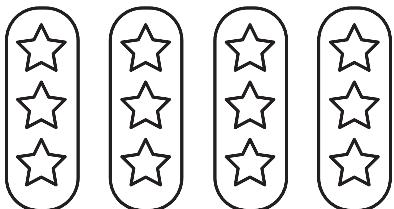
12. $75 \bigcirc 9 = 60 + 6$

13. $111 \bigcirc 11 = 50 + 50$

14. $94 \bigcirc 17 = 180 - 69$

4-1**Reteach****3NS2.2, 3MR2.3***Multiplication as Repeated Addition*

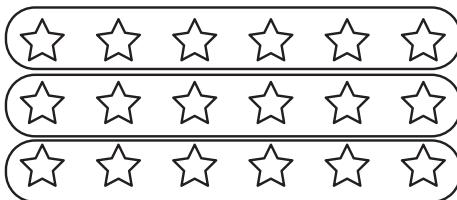
When there is an equal number in each group, you can find the total by using repeated addition or multiplication.



Multiply: 4 groups of 3 = 12
 $4 \times 3 = 12$

Add: $3 + 3 + 3 + 3 = 12$

Find each total. Write an addition and a multiplication sentence.

1.

$6 + 6 + 6 = \underline{\hspace{2cm}}$

$3 \text{ groups of } 6 = \underline{\hspace{2cm}}$

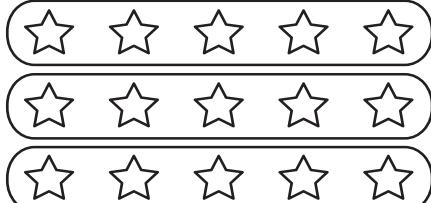
$3 \times 6 = \underline{\hspace{2cm}}$

2.

$2 + 2 + 2 + 2 + 2 + 2 + 2 = \underline{\hspace{2cm}}$

$7 \text{ groups of } 2 = \underline{\hspace{2cm}}$

$2 \times 7 = \underline{\hspace{2cm}}$

3.

$5 + 5 + 5 = \underline{\hspace{2cm}}$

$3 \text{ groups of } 5 = \underline{\hspace{2cm}}$

$3 \times 5 = \underline{\hspace{2cm}}$

4.

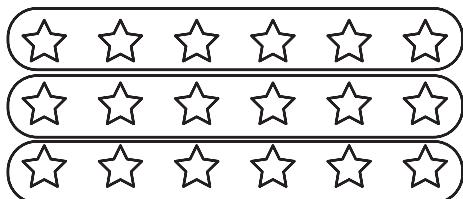
$4 + 4 + 4 = \underline{\hspace{2cm}}$

$3 \text{ groups of } 4 = \underline{\hspace{2cm}}$

$3 \times 4 = \underline{\hspace{2cm}}$

Multiplication as Repeated Addition

Write an addition and a multiplication sentence for each model.

1.**2.****Multiply. Use repeated addition.**

3. $4 \times 6 =$ _____

4. $2 \times 9 =$ _____

5. $3 \times 7 =$ _____

6. $6 \times 4 =$ _____

7. $8 \times 3 =$ _____

8. $5 \times 5 =$ _____

9. $2 \times 8 =$ _____

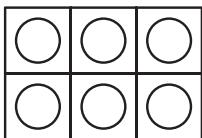
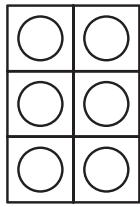
10. $6 \times 2 =$ _____

11. $3 \times 9 =$ _____

Solve.

12. If Jason can collect 5 cans in one week, how many cans can he collect in 7 weeks?

13. Omar collected 8 cans of food on Monday, 8 cans of food on Tuesday, and 8 cans of food on Thursday. How many cans did he collect in all?

4-2**Reteach****3AF1.5***Arrays and Multiplication***Find 2×3 and 3×2 .****Using Models**Make 2 rows of 3 counters to show 2×3 .Make 3 rows of 2 counters to show 3×2 .**Using Paper and Pencil**

Number of rows	Number in each row	Product
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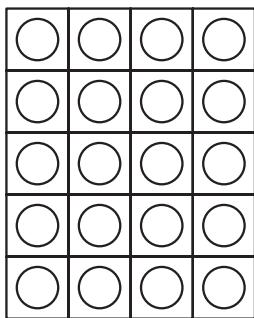
$$2 \times 3 = 6$$

Number of rows	Number in each row	Product
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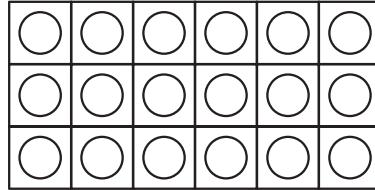
$$3 \times 2 = 6$$

Draw lines to match the multiplication sentence with an array. Then use the Commutative Property to write a different multiplication sentence.

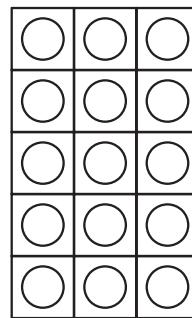
1. $5 \times 3 = 15$

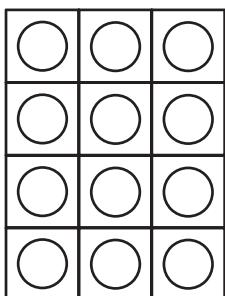
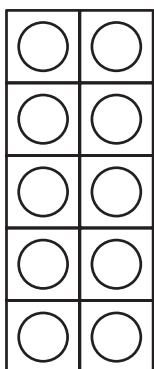
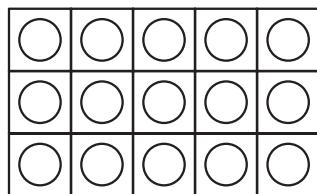


2. $3 \times 6 = 18$



3. $5 \times 4 = 20$



*Arrays and Multiplication***Write the multiplication sentence for each array.****Then multiply.****1.****2.****3.****Use the Commutative Property of Multiplication to find the missing number.**

4. $2 \times 3 = 6$

$\square \times 2 = 6$

5. $5 \times 0 = 0$

$\square \times 5 = 0$

6. $8 \times 6 = 48$

$6 \times \square = 48$

7. $7 \times 4 = 28$

$\square \times 7 = 28$

8. $2 \times 5 = 10$

$5 \times \square = 10$

9. $5 \times 9 = 45$

$9 \times \square = 45$

10. $8 \times 3 = 24$

$3 \times \square = 24$

11. $9 \times 4 = 36$

$\square \times 9 = 36$

12. $1 \times 8 = 8$

$8 \times \square = 8$

13. $7 \times 8 = 56$

$\square \times 7 = 56$

14. $6 \times 7 = 42$

$\square \times 6 = 42$

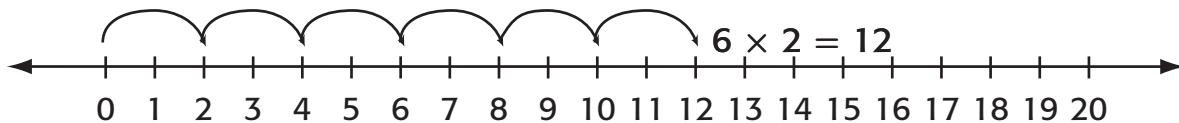
15. $9 \times 6 = 54$

$6 \times \square = 54$

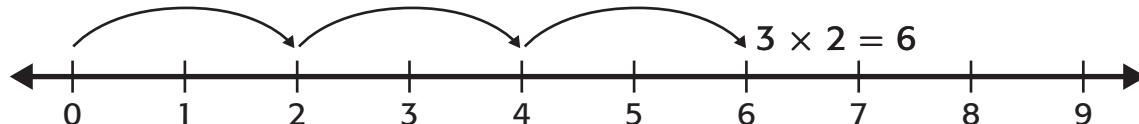
4-3**Reteach****3NS2.2***Multiply by 2*

You can skip count on the number line to help you multiply two numbers.

Find 6×2 . Think: 6 groups of 2 or 6 jumps of 2 spaces



Find 3×2 . Think: 3 groups of 2 or 3 jumps of 2 spaces



Multiply. You may want to use a number line.

1. $4 \times 2 =$ _____

2. $7 \times 2 =$ _____

3. $2 \times 9 =$ _____

4. $5 \times 2 =$ _____

5. $2 \times 6 =$ _____

6. $2 \times 3 =$ _____

7. $2 \times 2 =$ _____

8. $2 \times 4 =$ _____

9. $9 \times 2 =$ _____

10. $1 \times 2 =$ _____

11. $8 \times 2 =$ _____

12. $6 \times 2 =$ _____

13. $2 \times 7 =$ _____

14. $3 \times 2 =$ _____

15. $2 \times 5 =$ _____

16. $2 \times 8 =$ _____

Skills Practice*Multiply by 2***Multiply. Draw a picture or use an array.**

1.
$$\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 2 \\ \times 1 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$$

13. $3 \times 2 =$ _____

14. $2 \times 3 =$ _____

15. $5 \times 2 =$ _____

16. $2 \times 5 =$ _____

17. $9 \times 2 =$ _____

18. $2 \times 9 =$ _____

19. $2 \times 8 =$ _____

20. $2 \times 7 =$ _____

21. $2 \times 4 =$ _____

22. $6 \times 2 =$ _____

23. $7 \times 2 =$ _____

24. $8 \times 2 =$ _____

25. $2 \times 2 =$ _____

26. $2 \times 5 =$ _____

27. $4 \times 2 =$ _____

28. $7 \times 2 =$ _____

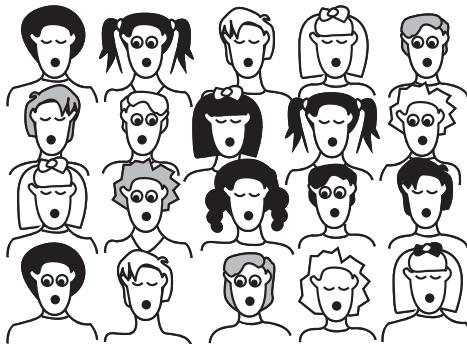
29. $8 \times 2 =$ _____

30. $1 \times 2 =$ _____

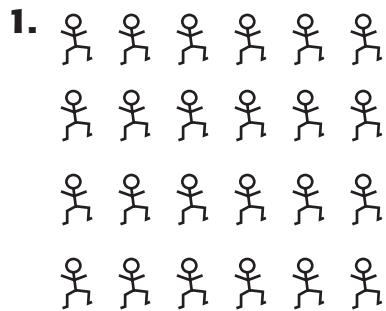
Write a multiplication sentence for each situation.**Then solve.**

31. The dancers in a ballet class rehearse for 3 hours each day. For how many hours will they rehearse from Tuesday through Saturday?

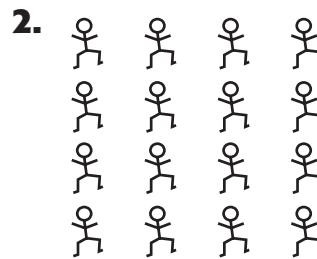
32. The beginner ballet class meets for 6 weeks Tuesday through Saturday. For how many days does the ballet class meet?

4-4**Reteach****3NS2.2***Multiply by 4***Find 4×5 .****Using Models****Using Pencil and Paper**

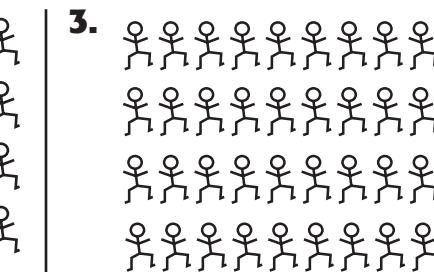
Number of rows	Number in each row	Total
4	5	= 20

Use the picture to find the product.

$$4 \times 6 = \underline{\hspace{2cm}}$$



$$4 \times 5 = \underline{\hspace{2cm}}$$



$$4 \times 9 = \underline{\hspace{2cm}}$$

Multiply.

4. $4 \times 7 = \underline{\hspace{2cm}}$

5. $4 \times 4 = \underline{\hspace{2cm}}$

6. $4 \times 3 = \underline{\hspace{2cm}}$

7. $3 \times 4 = \underline{\hspace{2cm}}$

8. $4 \times 2 = \underline{\hspace{2cm}}$

9. $4 \times 1 = \underline{\hspace{2cm}}$

10. $4 \times 6 = \underline{\hspace{2cm}}$

11. $9 \times 4 = \underline{\hspace{2cm}}$

12. $4 \times 8 = \underline{\hspace{2cm}}$

13. $7 \times 4 = \underline{\hspace{2cm}}$

14. $4 \times 9 = \underline{\hspace{2cm}}$

15. $2 \times 4 = \underline{\hspace{2cm}}$

16. $5 \times 4 = \underline{\hspace{2cm}}$

17. $6 \times 4 = \underline{\hspace{2cm}}$

18. $1 \times 4 = \underline{\hspace{2cm}}$

19. $4 \times 5 = \underline{\hspace{2cm}}$

20. $2 \times 4 = \underline{\hspace{2cm}}$

21. $4 \times 4 = \underline{\hspace{2cm}}$

Skills Practice**Multiply by 4****Multiply. Draw a picture or use an array.**

1.
$$\begin{array}{r} 1 \\ \times 4 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 4 \\ \times 6 \\ \hline \end{array}$$

Multiply.

7. $2 \times 4 =$ _____

8. $4 \times 6 =$ _____

9. $4 \times 4 =$ _____

10. $8 \times 4 =$ _____

11. $5 \times 4 =$ _____

12. $7 \times 4 =$ _____

13. $4 \times 2 =$ _____

14. $6 \times 4 =$ _____

15. $4 \times 5 =$ _____

16. $4 \times 7 =$ _____

17. $9 \times 4 =$ _____

18. $4 \times 8 =$ _____

19. $4 \times 1 =$ _____

20. $4 \times 3 =$ _____

21. $1 \times 4 =$ _____

22. $4 \times 9 =$ _____

23. $3 \times 4 =$ _____

24. $4 \times 7 =$ _____

Write a multiplication sentence for each situation.**Then solve.**

25. There are 4 rows of 9 chairs in the room. How many chairs are in the room?

26. There are 4 rows of 7 students in a class photograph. How many students are in the photograph?

*Problem-Solving Strategy***Extra or Missing Information**

Math class starts at 10:00 A.M. and lasts for 55 minutes. Art class starts 5 minutes after math class ends. Art class ends at 11:45 A.M. How long is art class?

Step 1 Understand	Make sure you understand the problem. What do you need to find? How long is art class?
Step 2 Plan	Make a plan Find out when art class begins and ends. Find the necessary information. Math starts at 10:00. It lasts for 55 minutes. Art starts 5 minutes later. Art class ends at 11:45.
Step 2 Solve	Carry out your plan. Find when math class ends. $10:00 \rightarrow 55 \text{ minutes later} \rightarrow 10:55$ Art starts 5 minutes later. $10:55 \rightarrow 5 \text{ minutes later} \rightarrow 11:00$ How long is art class? $11:00 \rightarrow 11:45 = 45 \text{ minutes}$ Art class is 45 minutes long.
Step 4 Check	Check your answer. Make sure you used the correct information.

Problem-Solving Strategy (continued)

Solve. If there is missing information, tell what facts you need to solve the problem.

1. Kirk practices the trumpet for 30 minutes on Tuesday, 45 minutes longer than that on Wednesday, and 30 minutes on Thursday. How much time does Kirk practice his trumpet in all?

2. Meg does spelling homework for 60 minutes and reading homework for 30 minutes. Her science homework takes 10 minutes longer than her reading homework. How long does she spend on her homework?

3. Samantha ate 4 servings of fruit every day for 7 days. Sometimes she ate strawberries, sometimes she ate peaches, and sometimes she drank orange juice. How many servings of fruit did Samantha eat?

4. Marcy is 3 inches taller than her sister. Her sister is 8 years old. How much taller is Marcy than her sister?

5. Elena has \$20 to spend at the fair. She already knows that she wants to buy an item that costs \$10. She also has to spend \$4 total on travel to and from the fair. How much money will she have left to spend after she pays for these things?

Skills Practice*Problem-Solving Strategy*

Solve. If there is missing information, tell what facts you need to solve the problems. If there is extra information, write it on the line provided.

1. Annie walks 3 minutes to her bus stop every morning and 3 minutes from the bus stop to her home after school. Her bus has 17 stops. How many minutes does Annie walk to and from the bus stop throughout five days?

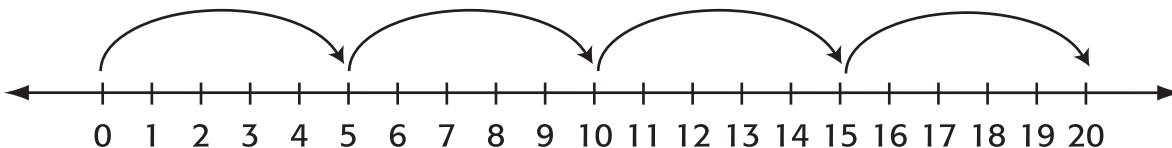
2. There are 2,593 library books on the library shelves. About 1,000 of them are fiction. If 308 books are checked out, how many library books will be left?

3. Brandy sold 395 candles for a fund-raiser. How many more candles does Brandy need to meet her goal?

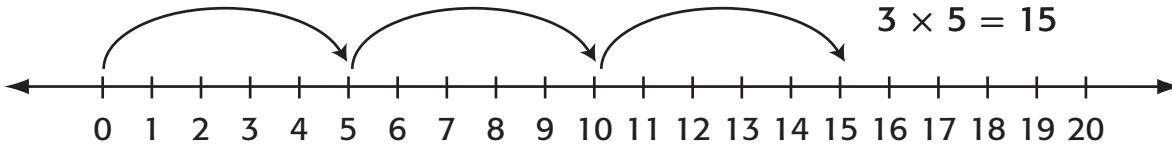
4. A movie theater has 200 seats. A movie is showing at 6:00. Suppose 133 people buy tickets. How many seats will be empty?

4-6**Reteach****3NS2.2****Multiply by 5****You can skip count on the number line to multiply by 5.****Find 4×5 .** Think: 4 groups of 5 or 4 jumps of 5

$$4 \times 5 = 20$$

**Find 3×5 .** Think: 3 groups of 5 or 3 jumps of 5

$$3 \times 5 = 15$$

**Multiply. You may want to use a number line.**

1. $2 \times 5 =$ _____

2. $4 \times 5 =$ _____

3. $7 \times 5 =$ _____

4. $5 \times 5 =$ _____

5. $5 \times 9 =$ _____

6. $1 \times 5 =$ _____

7. $6 \times 5 =$ _____

8. $5 \times 2 =$ _____

9. $5 \times 8 =$ _____

10. $5 \times 6 =$ _____

11. $3 \times 5 =$ _____

12. $5 \times 1 =$ _____

13. $5 \times 7 =$ _____

14. $4 \times 5 =$ _____

15. $6 \times 5 =$ _____

16. $5 \times 3 =$ _____

17. $8 \times 5 =$ _____

18. $5 \times 8 =$ _____

19. $9 \times 5 =$ _____

20. $5 \times 7 =$ _____

21. $5 \times 9 =$ _____

22. $5 \times 4 =$ _____

23. $3 \times 5 =$ _____

24. $5 \times 5 =$ _____

Skills Practice*Multiply by 5***Multiply. Draw a picture or use an array.**

1.
$$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 10 \\ \times 5 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$$

11. 5×7 _____

12. 4×5 _____

13. 2×5 _____

14. If there are 10 students and each student pays \$5 to a fundraiser, how much total money will they donate?

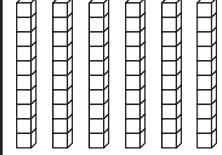
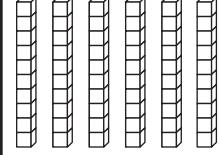
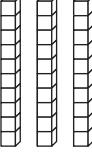
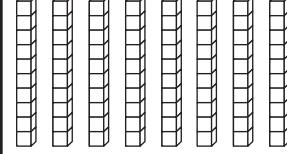
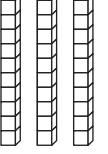
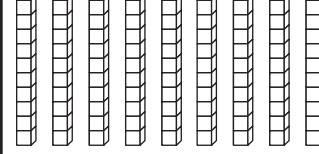
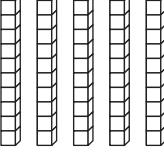
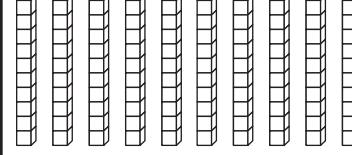
15. For a craft each student will need 5 eggs. If there are 9 students, how many eggs will be needed?

16. For each game that Carla wins at the fair, she gets 5 tickets. Suppose Carla has 10 tickets and wins 4 more games. How many tickets will Carla have in all?

ALGEBRA Find each missing number.

17. $5 \times \underline{\hspace{1cm}} = 55$ 18. $\underline{\hspace{1cm}} \times 5 = 30$ 19. $5 \times \underline{\hspace{1cm}} = 25$

Multiply by 10**You can use models to help you multiply by tens.**

	$1 \times 10 = 10$		$6 \times 10 = 60$
	$2 \times 10 = 20$		$7 \times 10 = 70$
	$3 \times 10 = 30$		$8 \times 10 = 80$
	$4 \times 10 = 40$		$9 \times 10 = 90$
	$5 \times 10 = 50$		$10 \times 10 = 100$

Multiply.

1.
$$\begin{array}{r} 10 \\ \times 2 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 10 \\ \times 7 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 10 \\ \times 8 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 10 \\ \times 4 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 10 \\ \times 9 \\ \hline \end{array}$$

6. $10 \times 3 = \underline{\hspace{2cm}}$

7. $10 \times 1 = \underline{\hspace{2cm}}$

8. $10 \times 7 = \underline{\hspace{2cm}}$

9. $10 \times 10 = \underline{\hspace{2cm}}$

10. $10 \times 6 = \underline{\hspace{2cm}}$

11. $10 \times 5 = \underline{\hspace{2cm}}$

Skills Practice*Multiply by 10***Multiply.**

1.
$$\begin{array}{r} 10 \\ \times 3 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 10 \\ \times 6 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 5 \\ \times 10 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 10 \\ \times 8 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 10 \\ \times 1 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 10 \\ \times 4 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 2 \\ \times 10 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 10 \\ \times 5 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 10 \\ \times 7 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 10 \\ \times 9 \\ \hline \end{array}$$

11. $10 \times 2 =$ _____

12. $10 \times 6 =$ _____

13. $8 \times 10 =$ _____

14. $10 \times 10 =$ _____

15. $4 \times 10 =$ _____

16. $10 \times 7 =$ _____

17. $5 \times 10 =$ _____

18. $3 \times 10 =$ _____

19. $9 \times 10 =$ _____

Solve.**For Exercises 20–22, use data from the pictograph.**20. How many votes did Yellowstone National Park get?
_____21. How many votes did the Everglades get?
_____22. How many people voted in the survey?

Favorite National Park	
Yellowstone	
Grand Canyon	
Everglades	
Key: Each  stands for 10 votes.	

Problem-Solving Investigation

George picked 24 ears of corn for a crab feast dinner. Penny pulled 39 crabs out of the trap to cook. There will be 16 family members having dinner. How many ears of corn are left if each family member eats one ear?

Step 1 Understand	<p>Be sure you understand the problem.</p> <p>What do you know</p> <ul style="list-style-type: none"> • George picked _____ ears of corn. • There are _____ people eating ears of corn. • Penny pulled _____ crabs out to cook. • You need to find out how many _____.
Step 2 Plan <ul style="list-style-type: none"> • Act it out • Draw a picture • Look for a pattern 	<p>Make a plan</p> <p>Choose a strategy.</p> <p>You can draw a picture. Decide what facts you know. Plan what you will do and in what order. Use your plan to solve the problem. Then check your solution to make sure it makes sense.</p>

Problem-Solving Investigation

Use any strategy shown below to solve. Tell what strategy you used.

PROBLEM-SOLVING STRATEGIES

- Act it out
- Draw a picture
- Look for a pattern

1. Patrick bought 5 books. Each book costs \$7. How much change will he have left from a \$50-bill?

2. Dave caught 7 fish. One fish broke the line and got away. Three fish were too small and he released them. How many fish did he bring home?

Skills Practice**3MR1.1, 3NS2.2***Problem-Solving Investigation*

Use any strategy shown below to solve. Tell what strategy you used.

PROBLEM-SOLVING STRATEGIES

- Act it out
- Draw a picture
- Look for a pattern

1. If there are 9 alligators and 2 chickens, how many legs are there altogether?

2. Steve bought 4 shirts. Each shirt cost \$10. How much change would he receive from \$40?

3. Elephants at the zoo each eat 5 bales of hay every day. If there are 3 elephants, how many bales of hay will they eat a day?

4. Christine collects dolls. She has 59 plastic dolls, 48 rubber bugs, 17 pairs of shoes, and 13 cloth dolls. How many total dolls does she have?

5. Annie made lemon squares. She cut each pan into 5 rows with 5 pieces. If she made two pans and ate five squares, how many squares are left?

*Multiply by 0 and 1***Multiply.****Using Models****Using Pencil and Paper**

1 group of 4 stars = 4 stars
 $1 \times 4 = 4$



4 groups of 1 star = 4 stars
 $4 \times 1 = 4$



0 groups of 4 stars = 0 stars
 $0 \times 4 = 0$

4 groups of 0 stars = 0 stars
 $4 \times 0 = 0$

Identity Property of Multiplication

The product of a nonzero number and 1 is the number itself.

Zero Property of Multiplication

The product of a number and 0 is 0.

Multiply.

1. $1 \times 0 =$ _____

2. $5 \times 1 =$ _____

3. $1 \times 8 =$ _____

4. $0 \times 3 =$ _____

5. $1 \times 7 =$ _____

6. $0 \times 5 =$ _____

7. $4 \times 0 =$ _____

8. $1 \times 4 =$ _____

9. $9 \times 0 =$ _____

10. $6 \times 1 =$ _____

11. $2 \times 1 =$ _____

12. $0 \times 9 =$ _____

13. $1 \times 6 =$ _____

14. $2 \times 0 =$ _____

15. $9 \times 1 =$ _____

16. $0 \times 6 =$ _____

17. $1 \times 2 =$ _____

18. $5 \times 0 =$ _____

19. $7 \times 1 =$ _____

20. $0 \times 8 =$ _____

21. $3 \times 1 =$ _____

22. $1 \times 1 =$ _____

23. $1 \times 9 =$ _____

24. $0 \times 4 =$ _____

25. $7 \times 0 =$ _____

26. $8 \times 1 =$ _____

27. $8 \times 0 =$ _____

Skills Practice*Multiply by 0 and 1***Multiply.**

1.
$$\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 3 \\ \times 0 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 8 \\ \times 1 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 1 \\ \times 7 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 0 \\ \times 1 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$$

7. $0 \times 5 = \underline{\hspace{2cm}}$

8. $9 \times 0 = \underline{\hspace{2cm}}$

9. $0 \times 4 = \underline{\hspace{2cm}}$

10. $1 \times 4 = \underline{\hspace{2cm}}$

11. $1 \times 2 = \underline{\hspace{2cm}}$

12. $9 \times 1 = \underline{\hspace{2cm}}$

13. $1 \times 6 = \underline{\hspace{2cm}}$

14. $7 \times 1 = \underline{\hspace{2cm}}$

15. $1 \times 3 = \underline{\hspace{2cm}}$

16. $6 \times 0 = \underline{\hspace{2cm}}$

17. $0 \times 2 = \underline{\hspace{2cm}}$

18. $5 \times 1 = \underline{\hspace{2cm}}$

ALGEBRA Find each missing number.

19. $6 \times \underline{\hspace{2cm}} = 6$

20. $\underline{\hspace{2cm}} \times 9 = 0$

21. $1 \times \underline{\hspace{2cm}} = 1$

22. $\underline{\hspace{2cm}} \times 7 = 0$

23. $5 \times \underline{\hspace{2cm}} = 5$

24. $\underline{\hspace{2cm}} \times 4 = 0$

25. $8 \times \underline{\hspace{2cm}} = 8$

26. $\underline{\hspace{2cm}} \times 3 = 0$

27. $2 \times \underline{\hspace{2cm}} = 0$

Write a multiplication sentence for each situation.

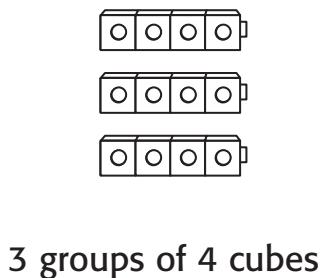
28. There is 1 row of 7 chairs in the back of the classroom. How many chairs are there?

29. There are 6 chairs around the table but no one is sitting in them. How many people are sitting in the chairs?

5-1**Reteach****3NS2.2****Multiply by 3**

There are different ways to find answers for multiplication problems. One way is to use models to represent the problem.

Find 3×4 .

Using Models**Using Paper and Pencil**

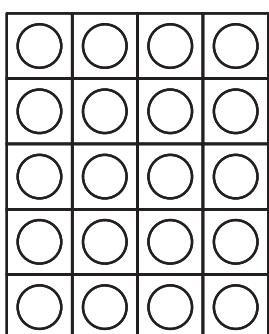
Number of Groups	Number in Each Group	Total
3 ↓ factor	4 ↓ factor	= 12 ↓ product

Use models to find the total number.



3 groups of 5 = _____

3. $4 \times 5 =$ _____



4 groups of 3 = _____

4. 

3 groups of 7 = _____

5. $3 \times 6 =$ _____

6. $8 \times 3 =$ _____

7. 3 groups of 3 = _____

8. 4 groups of 3 = _____

9. 3 groups of 2 = _____

10. 9 groups of 3 = _____

Multiply by 3**Multiply.**

1. $3 \times 10 =$ _____

2. $5 \times 3 =$ _____

3. $3 \times 8 =$ _____

4. $6 \times 3 =$ _____

5. $7 \times 3 =$ _____

6. $3 \times 9 =$ _____

7. $2 \times 3 =$ _____

8. $1 \times 3 =$ _____

9. $0 \times 3 =$ _____

10. $3 \times 7 =$ _____

11. $8 \times 3 =$ _____

12. $3 \times 6 =$ _____

13. $3 \times 5 =$ _____

14. $4 \times 3 =$ _____

15. $3 \times 4 =$ _____

16. $3 \times 8 =$ _____

ALGEBRA Complete each table.

17. **Rule:** multiply by 3

Input	Output
3	
6	
	30
	0
1	

18. **Rule:** multiply by 3

Input	Output
	12
9	
	6
	24
7	

Solve.

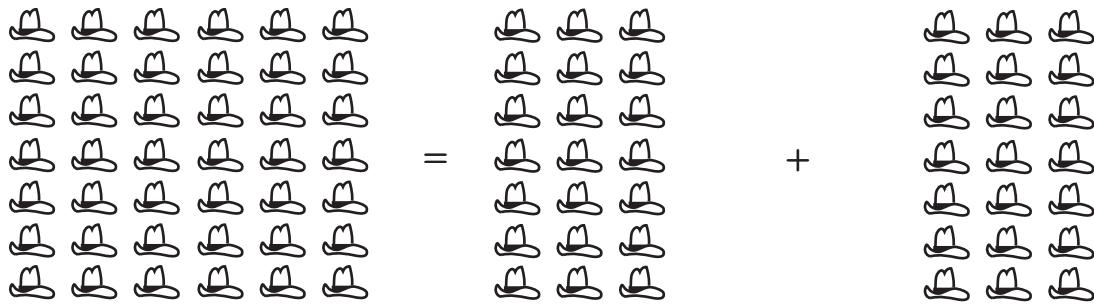
19. Jay has 3 bags of fruit. Each bag has 8 pieces of fruit. How many pieces of fruit does Jay have altogether?

20. Heather has 3 bags of pretzels. Each bag has 6 pretzels. How many pretzels does Heather have altogether?

Multiply by 6

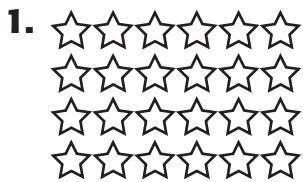
You can use facts that you already know to help you multiply by 6.

Find 7×6 by doubling 7×3 .

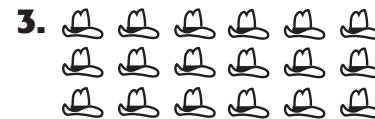


$$\begin{array}{rcl}
 \text{7 groups of 6} & = & \text{7 groups of 3} \quad \text{plus} \quad \text{7 groups of 3} \\
 7 \times 6 & = & 7 \times 3 \quad + \quad 7 \times 3 \\
 & = & 21 \quad + \quad 21 = 42
 \end{array}$$

Write a multiplication sentence for the picture.







Multiply.

4. $6 \times 3 =$ _____

5. $6 \times 5 =$ _____

6. $6 \times 6 =$ _____

7. $6 \times 8 =$ _____

8. $6 \times 1 =$ _____

9. $6 \times 2 =$ _____

10. $9 \times 6 =$ _____

11. $6 \times 7 =$ _____

12. $6 \times 4 =$ _____

13. $3 \times 9 =$ _____

14. $3 \times 3 =$ _____

15. $7 \times 3 =$ _____

16. $3 \times 5 =$ _____

17. $3 \times 8 =$ _____

18. $6 \times 3 =$ _____

Skills Practice*Multiply by 6***Multiply.**

1. $6 \times 5 =$ _____

2. $6 \times 7 =$ _____

3. $9 \times 6 =$ _____

4. $3 \times 6 =$ _____

5. $6 \times 6 =$ _____

6. $7 \times 6 =$ _____

7. $1 \times 6 =$ _____

8. $6 \times 2 =$ _____

9. $8 \times 6 =$ _____

10. $10 \times 6 =$ _____

11. $3 \times 6 =$ _____

12. $6 \times 4 =$ _____

13. $5 \times 6 =$ _____

14. $6 \times 3 =$ _____

15. $6 \times 8 =$ _____

16. $6 \times 7 =$ _____

17. $4 \times 6 =$ _____

18. $6 \times 9 =$ _____

ALGEBRA Find each missing number.

19. $5 \times$ _____ $= 30$

20. $9 \times$ _____ $= 54$

21. $8 \times$ _____ $= 24$

22. $6 \times$ _____ $= 42$

23. $6 \times$ _____ $= 48$

24. $9 \times$ _____ $= 27$

ALGEBRA Find each rule.**25.** Rule: Multiply by _____**26.** Rule: Multiply by _____

Rule: Multiply by	
Input	Output
6	36
7	42
8	48
9	54

Rule: Multiply by	
Input	Output
6	48
7	56
8	64

*Problem-Solving Strategy***Look for a Pattern**

Liz created a castle with pink towers and blue flags. On the first tower, she has 2 flags. The second tower has 4 flags, and the third tower has 8. If she keeps the pattern up, how many flags are on the fourth tower?

Step 1 Understand	<p>What do you know?</p> <p>There are 2 flags on the first tower.</p> <p>There are 4 flags on the second tower.</p> <p>There are 8 flags on the third tower.</p> <p>What do you need to find out?</p> <p>How many flags will be on the fourth tower?</p>								
Step 2 Plan	<p>Organize the data in a table. What are your columns? The towers</p> <p>What is in the row under each column? The number of flags</p> <table border="1"> <thead> <tr> <th>Tower 1</th> <th>Tower 2</th> <th>Tower 3</th> <th>Tower 4</th> </tr> </thead> <tbody> <tr> <td>▶▶</td> <td>▶▶▶▶</td> <td>▶▶▶▶▶▶</td> <td>?</td> </tr> </tbody> </table>	Tower 1	Tower 2	Tower 3	Tower 4	▶▶	▶▶▶▶	▶▶▶▶▶▶	?
Tower 1	Tower 2	Tower 3	Tower 4						
▶▶	▶▶▶▶	▶▶▶▶▶▶	?						
Step 3 Solve the problem. <div style="border: 1px solid black; border-radius: 50%; padding: 10px; width: 120px; height: 100px; display: flex; align-items: center; justify-content: center; font-size: 14px; font-style: italic; margin-top: 10px;"> <p>Think: What is added, subtracted or multiplied?</p> </div>	<p>What is done to 2 to get 4? 2 was added to get 4 OR 2 was multiplied to get 4.</p> <p>What was done to 4 to get 8? 4 was multiplied by 2.</p> <p>What was done to both the first and the second number? They were both multiplied by 2.</p> <p>Repeat the steps for tower 3 to check your rule. Then repeat for the fourth tower. Multiply 8 by 2. 16 flags will be on the fourth tower.</p>								
Step 4 Check	<p>Look back at your answer. Does it make sense? Why?</p>								

Reteach**3MR1.1, 3AF2.2***Problem-Solving Strategy (continued)***Practice by following the steps.**

Fred is putting pictures in a scrapbook. He uses a pattern of groups of space and sports pictures. Each group has 1 space picture and 3 sports pictures. If the pattern continues, how many sports pictures will he use in all if there are a total of 24 pictures?

Step 1 Understand	<p>You know: There is 1 space picture in each group. There are 3 sports pictures in each group. _____</p> <p>You need to find out:</p> <p>How many _____ will be used?</p>																		
Step 2 Plan	<p>Organize the data in a table. What are your columns? The groups. There are 4 pictures in each group and 24 pictures in all. $4 \times \underline{\hspace{2cm}} = 24$. You need _____ columns.</p> <p>What is in the row under each column? The number of space and sports pictures in each group.</p> <table border="1"> <thead> <tr> <th>Group 1</th><th>Group 2</th><th>Group 3</th><th>Group 4</th><th>Group 5</th><th>Group 6</th></tr> </thead> <tbody> <tr> <td>1 space</td><td>1 space</td><td>1 space</td><td>1 space</td><td>1 space</td><td>1 space</td></tr> <tr> <td>3 sports</td><td>3 sports</td><td>3 sports</td><td>3 sports</td><td>3 sports</td><td>3 sports</td></tr> </tbody> </table>	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	1 space	3 sports										
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6														
1 space	1 space	1 space	1 space	1 space	1 space														
3 sports	3 sports	3 sports	3 sports	3 sports	3 sports														
Step 3 Solve	<p>Look for the pattern. Since the same group repeats, _____ the number of sports pictures by 6.</p>																		
Step 4 Check	<p>Multiply 3 by 6.</p> <p>6 groups of 3 sports pictures equal _____ sports pictures.</p>																		

Skills Practice*Problem-Solving Strategy***3MR1.1, 3AF2.2****Solve. Use the *look for a pattern* strategy.**

1. A dancer practices 3 days in a row and then takes one day off to rest. She has a show in two weeks. If she practices on the first 3 days, and takes the 4th day off, how many times will she practice in 14 days?

2. The concert hall offers specials on tickets. When you buy 5 tickets, you get 1 other ticket free. When you buy 10 tickets, you get 2 other tickets free. Lyddie got 4 tickets free. How many tickets did she buy?

3. The marching band lines up in rows. The first row has 2 people. The second row has 4 people. The third row has 6 people. If this pattern continues, how many people will be in the fifth row?

4. The Portsmouth Players perform 2 daytime shows and 3 evening shows per week. Their current play will run for 30 shows. How many of the shows will be daytime shows?

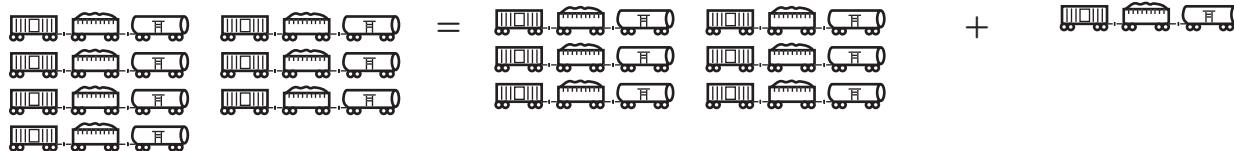
5. Ken takes piano lessons. The 1st week, he practices 20 minutes each day. The 2nd week, he practices 40 minutes each day. The 3rd week, he practices 1 hour each day. If this pattern continues, how many minutes will he practice each day in the 5th week?

6. A theater seat in the orchestra costs \$32. A balcony seat costs \$14. How much more does an orchestra seat cost than a balcony seat?

5-4**Reteach****3NS2.2****Multiply by 7**

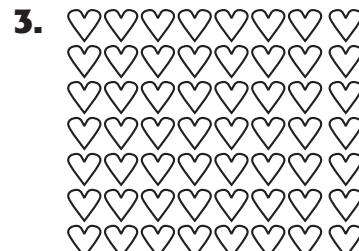
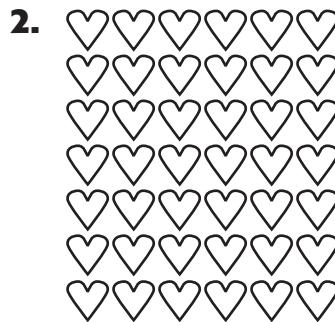
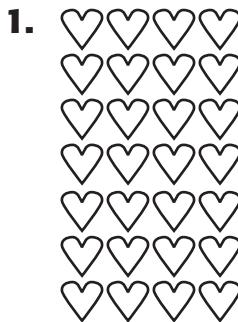
You can add on to a known fact to find a new fact.

Find 7×3 by finding $(6 \times 3) + (1 \times 3)$.



$$\begin{array}{lcl}
 \text{7 groups of 3} & = & \text{6 groups of 3} & \text{plus} & \text{1 group of 3} \\
 7 \times 3 & = & 6 \times 3 & + & 1 \times 3 \\
 & = & 18 & + & 3 = 21
 \end{array}$$

Write a multiplication sentence for the picture.



Find each product.

4. $3 \times 7 =$ _____

5. $5 \times 7 =$ _____

6. $7 \times 7 =$ _____

7. $8 \times 7 =$ _____

8. $7 \times 6 =$ _____

9. $7 \times 9 =$ _____

10. $9 \times 7 =$ _____

11. $4 \times 7 =$ _____

12. $7 \times 1 =$ _____

13. $6 \times 7 =$ _____

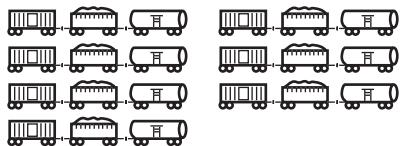
14. $3 \times 7 =$ _____

15. $0 \times 7 =$ _____

16. $7 \times 4 =$ _____

17. $1 \times 7 =$ _____

18. $2 \times 7 =$ _____

Skills Practice*Multiply by 7***Write multiplication sentences.****1.** How many train cars?**2.** How many fingers?**Multiply.**

$$\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$$

9. $7 \times 4 =$ _____

10. $7 \times 5 =$ _____

11. $7 \times 1 =$ _____

ALGEBRA Complete the table.**12.**

Rule: Multiply by 7	
Input	Output
	35
	42
7	
	56

13.

Rule: Multiply by 7	
Input	Output
3	
	35
7	
	63

Solve.**14.** Jason read about trains for 2 hours each day for 1 week. How many hours did Jason read?

Multiply by 8

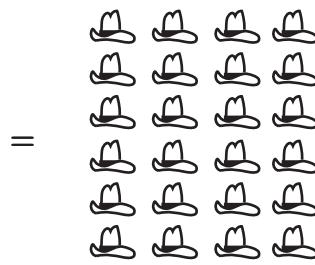
You can use facts that you already know to help you multiply by 8.

Find 6×8 by doubling 6×4 .



6 groups of 8

$$6 \times 8$$



= 6 groups of 4

$$= 6 \times 4$$

$$= 24$$



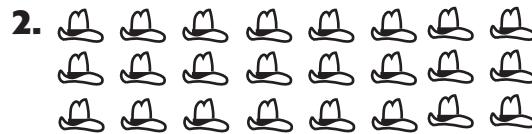
plus 6 groups of 4

$$+ 6 \times 4$$

$$+ 24 = 48$$

Write a multiplication sentence for each picture.





Multiply.

3. $2 \times 8 =$ _____

4. $0 \times 8 =$ _____

5. $8 \times 5 =$ _____

6. $8 \times 6 =$ _____

7. $8 \times 1 =$ _____

8. $8 \times 7 =$ _____

9. $5 \times 8 =$ _____

10. $8 \times 4 =$ _____

11. $3 \times 8 =$ _____

Multiply by 8**Multiply.**

1. $7 \times 8 =$ _____

2. $5 \times 8 =$ _____

3. $8 \times 7 =$ _____

4. $8 \times 8 =$ _____

5. $9 \times 8 =$ _____

6. $8 \times 3 =$ _____

7. $4 \times 8 =$ _____

8. $6 \times 8 =$ _____

9. $8 \times 10 =$ _____

10. $8 \times 1 =$ _____

11. $8 \times 0 =$ _____

12. $8 \times 5 =$ _____

13. $8 \times 4 =$ _____

14. $8 \times 9 =$ _____

15. $2 \times 8 =$ _____

16. $9 \times 8 =$ _____

ALGEBRA Find each missing number.

17. _____ $\times 8 = 64$

18. _____ $\times 6 = 48$

19. _____ $\times 5 = 40$

20. _____ $\times 8 = 24$

21. _____ $\times 8 = 32$

22. _____ $\times 8 = 56$

23. _____ $\times 8 = 64$

24. _____ $\times 8 = 48$

25. _____ $\times 8 = 0$

26. _____ $\times 9 = 72$

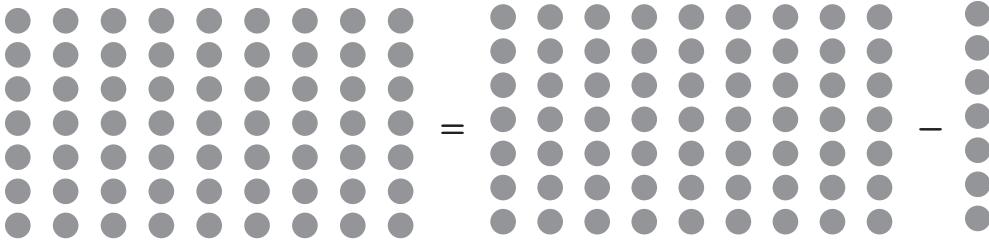
Solve.

27. Justin is going to a baseball game with 8 other boys. The tickets cost \$5. How much will it cost for all 9 boys to watch the game?

28. Mike worked 8 hours washing cars for Mr. Smith. Mr. Smith paid him \$4 an hour. How much did Mike earn?

*Multiply by 9***Here is a strategy you can use when multiplying by 9.**

You can multiply the number by 10 and then subtract the number to find a new fact.

Find 9×7 .

$$\begin{array}{rcl}
 \text{9 groups of 7} & = & \text{10 groups of 7} \\
 9 \times 7 & = & 10 \times 7 \\
 & = & 70
 \end{array}
 \qquad \qquad \qquad
 \begin{array}{rcl}
 \text{minus} & & \text{1 groups of 7} \\
 & - & 1 \times 7 \\
 & - & 7 = 63
 \end{array}$$

Multiply.

1.
$$\begin{array}{r}
 9 \\
 \times 4 \\
 \hline
 \end{array}$$

2.
$$\begin{array}{r}
 9 \\
 \times 5 \\
 \hline
 \end{array}$$

3.
$$\begin{array}{r}
 3 \\
 \times 9 \\
 \hline
 \end{array}$$

4.
$$\begin{array}{r}
 9 \\
 \times 7 \\
 \hline
 \end{array}$$

5.
$$\begin{array}{r}
 9 \\
 \times 8 \\
 \hline
 \end{array}$$

6.
$$\begin{array}{r}
 6 \\
 \times 9 \\
 \hline
 \end{array}$$

7. $9 \times 2 =$ _____

8. $5 \times 9 =$ _____

9. $9 \times 4 =$ _____

10. $6 \times 9 =$ _____

11. $9 \times 3 =$ _____

12. $9 \times 1 =$ _____

13. $9 \times 9 =$ _____

14. $9 \times 0 =$ _____

15. $9 \times 8 =$ _____

16. $2 \times 9 =$ _____

17. $8 \times 9 =$ _____

18. $3 \times 9 =$ _____

Skills Practice*Multiply by 9***Multiply.**

1.
$$\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 9 \\ \times 1 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 9 \\ \times 0 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 9 \\ \times 9 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 8 \\ \times 9 \\ \hline \end{array}$$

13. $2 \times 9 =$ _____

14. $4 \times 9 =$ _____

15. $9 \times 6 =$ _____

16. $8 \times 9 =$ _____

17. $9 \times 1 =$ _____

18. $7 \times 9 =$ _____

19. $3 \times 9 =$ _____

20. $9 \times 9 =$ _____

21. $9 \times 0 =$ _____

22. $9 \times 1 =$ _____

23. $7 \times 9 =$ _____

24. $5 \times 9 =$ _____

25. $2 \times 9 =$ _____

26. $0 \times 9 =$ _____

27. $9 \times 4 =$ _____

28. $8 \times 6 =$ _____

29. $3 \times 8 =$ _____

30. $6 \times 7 =$ _____

31. $6 \times 5 =$ _____

32. $7 \times 3 =$ _____

33. $5 \times 7 =$ _____

34. $9 \times 3 =$ _____

35. $8 \times 7 =$ _____

36. $9 \times 6 =$ _____

Solve.

37. Jordan saw 9 airplanes fly over his house every day last week. How many airplanes did Jordan see last week?

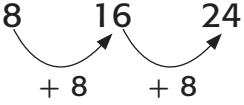
38. The Sports Cap Company sent 3 caps to each of the 9 starters on a baseball team. How many caps did the company send?

*Problem-Solving Investigation***Choose a Strategy**

Juan has pieces of wood. The first piece of wood is 8 inches. The second piece of wood is 16 inches. The third piece of wood is 24 inches. If this pattern continues, what will be the length of the twelfth piece of wood?

Step 1 Understand	<p>Be sure you understand the problem.</p> <p>What facts do you know?</p> <ul style="list-style-type: none"> • The first piece of wood is _____ inches. • The second piece of wood is _____ inches. • The third piece of wood is _____ inches. <p>What do you need to find?</p> <ul style="list-style-type: none"> • You need to find the length of _____.
Step 2 Plan <ul style="list-style-type: none"> • Logical Reasoning • Draw a Picture or Diagram • Make a Graph • Act It Out • Make a Table or List • Find a Pattern • Guess and Check • Write an Equation • Work Backward • Solve a Simpler Problem 	<p>Make a plan.</p> <p>Choose a strategy.</p> <p>You can find the pattern.</p> <p>You can also draw a picture. Show 12 pieces of wood. Use the pattern, and write the length of each piece next to the piece of wood.</p>

Problem-Solving Investigation (continued)

Step 3 Solve	Plan 1 Carry out your plan. Find the pattern.  The pattern is add 8. Plan 2 Draw a picture of 12 pieces of wood. Write the length next to each piece. <table border="1"> <tbody> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> <tr> <td>8</td> <td>16</td> <td>24</td> <td>32</td> <td>40</td> <td>48</td> </tr> </tbody> </table> <table border="1"> <tbody> <tr> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> </tr> <tr> <td>56</td> <td>64</td> <td>72</td> <td>80</td> <td>88</td> <td>96</td> </tr> </tbody> </table> <p>The twelfth piece of wood is _____ inches.</p>	1	2	3	4	5	6	8	16	24	32	40	48	7	8	9	10	11	12	56	64	72	80	88	96
1	2	3	4	5	6																				
8	16	24	32	40	48																				
7	8	9	10	11	12																				
56	64	72	80	88	96																				
Step 4 Check	Is the solution reasonable? Reread the problem. How can you check your answer? <hr/> <hr/> <hr/>																								

Solve.

1. Jim has 5 packs of cards. There are 15 cards in each pack. He gives 3 of his packs away. How many cards does he have left?

2. Winnie is making a quilt. The first section has 2 pieces of fabric. The second section has 5 pieces of fabric. The third section has 8 pieces of fabric. If this pattern continues, how many pieces of fabric will be in the eighth section of the quilt?

*Problem-Solving Investigation***Choose a strategy to solve the problem.**

1. On Park Day, volunteers plant trees in the park. The first tree is 2 feet tall. The second tree is 4 feet tall. The third tree is 6 feet tall. Suppose this pattern continues. What will be the height of the fifth tree?

3. Jenny takes a photo of the town square. She makes a square frame for the photo. Each of the 4 sides of the frame is 9 inches long. How many inches around is the frame?

2. There are 8 rows of trees in the park. Each row has 8 trees. How many trees are there in all?

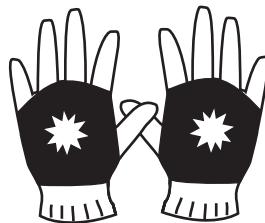
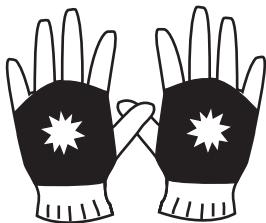
4. Some volunteers are building picnic tables. Each table uses 5 pieces of wood for the top, 2 pieces of wood for the sides, and 6 pieces of wood for the rest of the table. How many pieces of wood are needed to make 4 picnic tables?

Mixed Strategy Review

5. This year, a town sells tickets to the picnic to 252 adults and 518 children. Last year, there were 695 people at the picnic. How many more people are there this year than last year?

7. Write a problem that you could solve by drawing a picture or by finding a pattern. Share it with others.

6. There are three groups of students making murals for the train station. Each group has 6 students. How many students are there in all?

*Algebra: Associative Property***You can use the properties of multiplication to multiply 3 numbers.**Find $3 \times 2 \times 5$.**The Commutative Property of Multiplication**

When multiplying, the order of the factors does not change the product.

$$3 \times 2 \times 5 = 30$$

$$2 \times 5 \times 3 = 30$$

$$5 \times 2 \times 3 = 30$$

You can use the Commutative Property to switch the order of the numbers 3, 2, and 5.

The Associative Property of Multiplication

When multiplying, the grouping of the factors does not change the product.

$$3 \times 2 \times 5 = 30$$

$$3 \times (2 \times 5) = 30$$

$$(3 \times 2) \times 5 = 30$$

You can use the Associative Property to group two factors.

Find each product.

1. $5 \times 3 \times 2 =$ _____

2. $2 \times 2 \times 6 =$ _____

3. $7 \times 4 \times 1 =$ _____

4. $3 \times 2 \times 3 =$ _____

5. $5 \times 4 \times 2 =$ _____

6. $7 \times 8 \times 0 =$ _____

7. $2 \times 7 \times 2 =$ _____

8. $3 \times 6 \times 2 =$ _____

9. $8 \times 7 \times 1 =$ _____

10. $3 \times 4 \times 2 =$ _____

11. $6 \times 3 \times 3 =$ _____

12. $6 \times 2 \times 3 =$ _____

13. $8 \times 9 \times 0 =$ _____

14. $6 \times 5 \times 0 =$ _____

15. $9 \times 1 \times 5 =$ _____

Find each missing number.

16. $5 \times 2 \times$ _____ $= 80$

17. _____ $\times 2 \times 6 = 24$

18. $1 \times 7 \times 3 =$ _____

19. _____ $\times 2 \times 5 = 20$

*Algebra: Associative Property***Find each product.**

1. $2 \times 2 \times 6 =$ _____

2. $1 \times 8 \times 4 =$ _____

3. $9 \times 3 \times 2 =$ _____

4. $3 \times 3 \times 1 =$ _____

5. $5 \times 2 \times 4 =$ _____

6. $9 \times 1 \times 0 =$ _____

7. $6 \times 3 \times 1 =$ _____

8. $8 \times 3 \times 2 =$ _____

9. $4 \times \underline{\hspace{1cm}} \times 4 = 32$

10. $5 \times \underline{\hspace{1cm}} \times 1 = 45$

11. $\underline{\hspace{1cm}} \times 6 \times 2 = 12$

12. $\underline{\hspace{1cm}} \times 6 \times 1 = 12$

13. $3 \times \underline{\hspace{1cm}} \times 4 = 24$

14. $6 \times 9 \times \underline{\hspace{1cm}} = 0$

15. $1 \times \underline{\hspace{1cm}} \times 3 = 15$

16. $5 \times \underline{\hspace{1cm}} \times 3 = 60$

Solve.

17. Tony and his friends had a pizza party. They bought 2 pizzas, each cut into 8 slices. Tony put 3 slices of banana pepper on each piece. How many slices of banana peppers did he use?

18. Tony also bought 3 packs of soda in cans. Each pack held 6 cans. How many cans of soda did Tony buy?

19. Which of the following does not belong with the other three?

$(1 \times 3) \times 2 = 1 \times (3 \times 2)$

$(6 \times 3) \times 2 = 6 \times (3 \times 2)$

$2 \times (6 \times 1) = (2 \times 6) \times 1$

$5 \times (3 \times 1) = (5 \times 5) \times 2$

*Algebra: Find a Rule***A rule tells you what to do. This works in math too.**

To build a boxcar, Bob needs to put 4 wheels on the corners of a wooden box. If he wanted to build 4 boxcars, how many wheels would he need?

Step 1 Find a pattern.

You know that 1 boxcar = 4 wheels.

So, 2 boxcars = 8 wheels.

The pattern or rule is to multiply by 4.

Step 2 Extend the pattern.

3 boxcars = 3×4 or 12 wheels.

$$3 \times 4 = 12$$

4 boxcars = 4×4 = 16 wheels

So Bob needs 16 wheels.

Practice.

1. For every 2 wheels that Bob bought, the man in the store gave him 2 free wheels. When Bob bought 16 wheels, how many did he get free?

2. Write the rule for each table. Then, complete the table.

Rule: ■	
Input	Output
3	6
■	10
7	14
9	18

Rule: ■	
Input	Output
4	12
5	15
7	■
■	24

Rule: ■	
Input	Output
5	25
	30
5	■
7	35

Skills Practice*Algebra: Find a Rule***Write the rule for each table. Then complete the table.**

1. **Rule: ■**

Rule: ■	
Input	Output
5	20
■	24
7	28
8	32

2. **Rule: ■**

Rule: ■	
Input	Output
4	8
■	10
7	■
■	16

3. **Rule: ■**

Rule: ■	
Input	Output
6	54
■	63
8	■
9	81

4. **Rule: ■**

Rule: ■	
Input	Output
10	■
■	24
6	18
9	27

5. **Rule: ■**

Rule: ■	
Input	Output
7	■
■	6
10	60
8	■

6. **Rule: ■**

Rule: ■	
In	Out
3	6
6	12
9	■
12	■

7. **Rule: ■**

Rule: ■	
In	Out
7	28
5	20
10	■
2	■

8. **Rule: ■**

Rule: ■	
In	Out
5	50
7	70
9	■
3	■

9. **Rule: ■**

Rule: ■	
In	Out
9	18
8	16
9	■
■	18

Find a rule. Then extend the rule to solve.

10. On Monday, there were 5 flowers blooming in the garden.

On Tuesday, there were 10 flowers blooming. There were 15 by Wednesday. By Friday, how many flowers were blooming?

Relate Division to Subtraction

Cal put 18 astronaut collector's cards in a scrapbook. He put 6 cards on each page. How many pages did Cal use?

Find $18 \div 6$.

$$\begin{array}{r} 18 \\ - 6 \\ \hline 12 \\ - 6 \\ \hline 6 \\ - 6 \\ \hline 0 \end{array}$$

Keep subtracting the same number until there is nothing left. Since the 6 was subtracted 3 times, $18 \div 6 = 3$.

You can use repeated subtraction.

Divide. Use repeated subtraction.

1. $12 \div 4 =$ _____

$$\begin{array}{r} 12 \\ - 4 \\ \hline \boxed{} \\ - 4 \\ \hline \boxed{} \\ - 4 \\ \hline \boxed{} \end{array}$$

2. $20 \div 5 =$ _____

$$\begin{array}{r} 20 \\ - 5 \\ \hline \boxed{} \\ - 5 \\ \hline \boxed{} \\ - 5 \\ \hline \boxed{} \end{array}$$

3. $21 \div 7 =$ _____

$$\begin{array}{r} 21 \\ - 7 \\ \hline \boxed{} \\ - 7 \\ \hline \boxed{} \\ - 7 \\ \hline \boxed{} \end{array}$$

Write how many times you need to subtract.

4. $8 \div 2 =$ _____

5. $6 \div 3 =$ _____

6. $10 \div 5 =$ _____

7. $12 \div 6 =$ _____

Divide.

8. $18 \div 3 =$ _____

9. $24 \div 6 =$ _____

10. $28 \div 7 =$ _____

11. $30 \div 6 =$ _____

12. $8 \div 8 =$ _____

13. $18 \div 3 =$ _____

Skills Practice*Relate Division to Subtraction***Write how many times you need to subtract.**

1. $10 \div 5 =$ _____

2. $21 \div 3 =$ _____

3. $24 \div 4 =$ _____

4. $18 \div 3 =$ _____

5. $30 \div 6 =$ _____

6. $16 \div 2 =$ _____

Divide.

7. $7 \div 7 =$ _____

8. $18 \div 2 =$ _____

9. $28 \div 4 =$ _____

10. $32 \div 4 =$ _____

11. $27 \div 9 =$ _____

12. $36 \div 4 =$ _____

13. $12 \div 2 =$ _____

14. $16 \div 8 =$ _____

15. $25 \div 5 =$ _____

16. $28 \div 7 =$ _____

17. $9 \div 9 =$ _____

18. $20 \div 4 =$ _____

ALGEBRA Find each missing number.

19. $25 \div \square = 5$

20. $\square \div 3 = 4$

21. $14 \div \square = 7$

22. $\square \div 4 = 8$

Solve.

23. In Mr. Ryan's class, 18 students write reports on stars. The students work in groups of 3. Each group hands in 1 report. How many reports on stars did the students hand in?

24. Janell pays \$20 for 5 astronaut models. Each model costs the same amount. How much does each model cost?

6-2**Reteach****3NS2.3***Relate Multiplication to Division*

2 groups

4 in each group

8 in all

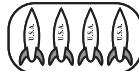
8 in all

2 groups

4 in each group



Number of groups	Number in each group	Number in all	Number in all	Number of groups	Number in each group
2	4	= 8	8	÷ 2	= 4

Complete.**1.** 3 groups

12 in all

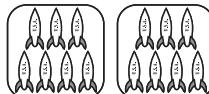
4 in each group



3 groups

_____ in all

_____ in each group

 $3 \times 4 =$ _____ $12 \div 3 =$ _____**2.** _____ groups

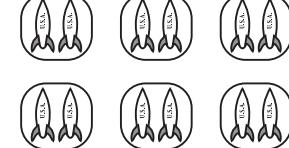
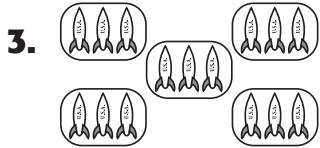
_____ in all

_____ in each group

_____ groups

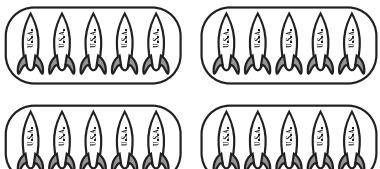
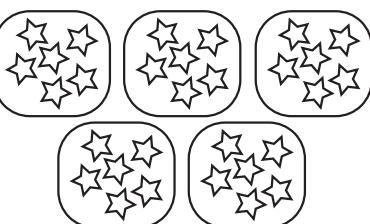
_____ in all

_____ in each group

 $\text{_____} \times \text{_____} = \text{_____}$ $\text{_____} \div \text{_____} = \text{_____}$  $\text{_____} \times \text{_____} = \text{_____}$ $\text{_____} \times \text{_____} = \text{_____}$ $\text{_____} \div \text{_____} = \text{_____}$ $\text{_____} \div \text{_____} = \text{_____}$

6-2**Skills Practice****3NS2.3***Relate Multiplication to Division*

Write related multiplication and division sentences for each picture.

1.**2.**

Write related multiplication and division sentences for each group of numbers.

3. 2, 6, 12**4. 3, 7, 21****5. 6, 6, 36**

Write \times or \div to make each sentence true.

6. 54 ○ 9 = 6

7. 81 ○ 9 = 9

8. 9 ○ 5 = 45

9. 8 ○ 4 = 32

10. 16 ○ 8 = 2

11. 10 ○ 1 = 10

*Problem-Solving Strategy***Choose an operation.**

Sabrina's class uses 24 rubber balls to make models of the planets in our solar system. There are 8 groups of students. Each group gets the same number of rubber balls. How many rubber balls does each group get?

Step 1 Understand	Make sure you understand the problem. What do you need to find? You need to find how many groups of _____ there are in _____.
Step 2 Plan	Choose the operation. You can use division. You can separate the rubber balls into equal groups.
Step 3 Solve	Carry out your plan. Write a division sentence. _____ \div _____ = _____
Step 4 Check	Check your answer. You can use repeated subtraction.

Solve. Tell which operation you chose.

1. Three friends make a model of a space station. They spend \$21 on supplies and split the cost equally. How much does each friend spend?

2. There are 32 people in line for the planetarium. There are only 8 tickets left. How many people will not get tickets?

*Problem-Solving Strategy (continued)***Solve.**

3. 12 friends are split into 3 groups of the same size. How many are in each group?

4. Jordan's class has 27 students. If Jordan's baking pan will make 9 brownies at a time, how many batches of brownies will he have to make?

5. Jerome and Katie have collected 7 seashells each. How many do they have in all?

6. If Dennis needs to collect 40 bottle caps in 5 days to win a prize, how many must he collect each day?

7. Mrs. Davis brought in 24 bananas to split evenly among the after-school art club. There are 8 people in the group including Mrs. Davis. How many bananas can they each eat?

8. A family of six purchased tickets to a play. If the total cost of the tickets was \$54, how much did each ticket cost?

Skills Practice*Problem-Solving Strategy***Solve. Use the *choose an operation* strategy.**

1. Paul is making a solar system notebook. Paul draws pictures of 8 planets. He draws 2 planets on each page. How many pages does he use?

2. Leroy has 15 pieces of clay. He will divide the clay equally to make models of 5 planets. How many pieces of clay will Leroy use to make each planet?

3. Naomi had 12 sun stickers. She gave 3 sun stickers to Jose. How many sun stickers does Naomi have left?

4. There are 45 children in the planetarium. They are sitting in rows of 9. How many rows of children are there?

Solve. Use any strategy.

5. Brian draws 16 constellations. He gives away 4 drawings. How many drawings does Brian have left?

6. Janice uses 17 stars to draw the constellation Andromeda. She uses 8 stars to draw the constellation Cepheus. How many more stars did Janice use in drawing Andromeda than in Cepheus?

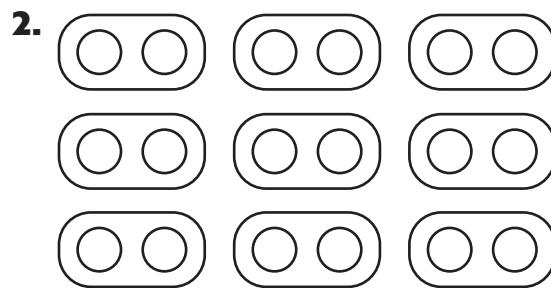
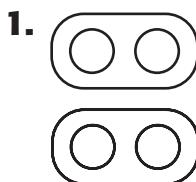
Divide by 2

You have 10 counters. How many groups of 2 can you make?



Think: 5 groups of 2 counters or $5 \times 2 = 10$

You can write $10 \div 2 = 5$, or $2 \overline{)10}$.

Complete.

$3 \times 2 = \underline{\hspace{2cm}}$

$9 \times 2 = \underline{\hspace{2cm}}$

$6 \div 2 = \underline{\hspace{2cm}}$

$18 \div 2 = \underline{\hspace{2cm}}$

Divide. Write a related multiplication fact.

3. $16 \div 2 = \underline{\hspace{2cm}}$

4. $14 \div 2 = \underline{\hspace{2cm}}$

5. $8 \div 2 = \underline{\hspace{2cm}}$

6. $6 \div 2 = \underline{\hspace{2cm}}$

7. $12 \div 2 = \underline{\hspace{2cm}}$

8. $4 \div 2 = \underline{\hspace{2cm}}$

Skills Practice**3NS2.3, 3MR2.3***Divide by 2***Divide.**

1. $4 \div 2 =$ _____

2. $8 \div 2 =$ _____

3. $20 \div 2 =$ _____

4. $14 \div 2 =$ _____

5. $18 \div 2 =$ _____

6. $10 \div 2 =$ _____

7. $12 \div 2 =$ _____

8. $6 \div 2 =$ _____

9. $16 \div 2 =$ _____

10. $22 \div 2 =$ _____

Divide. Use repeated subtraction on a number line.

11. $2\overline{)10} =$ _____

12. $2\overline{)8} =$ _____

Divide. Write a related multiplication fact.

13. $14 \div 2 =$ _____

14. $2\overline{)10} =$ _____

15. $2\overline{)20} =$ _____

16. $18 \div 2 =$ _____

Solve.

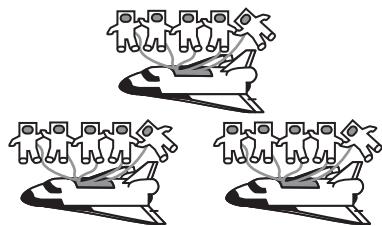
17. Janet has a small pizza cut into 12 pieces. She wants to share the pizza equally with her friend. How many pieces should she give her friend?

18. There are 18 markers on the table. If Fred and Sam each get an equal amount, how many markers will each one get?

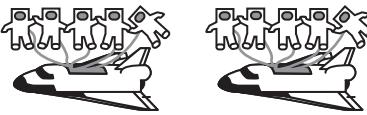
Divide by 5

Think of a related multiplication fact to divide by 5.

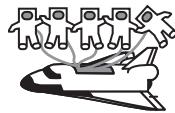
4 space shuttles		20 astronauts in all
5 astronauts on each shuttle		5 astronauts on each shuttle
20 astronauts in all		4 space shuttles
Number of groups	Number in each group	Number in all
4	\times	5 = 20
Number in all	Number in each group	Number of groups
20	\div	5 = 4

Divide.**1.**

$$15 \div 5 = \underline{\quad}$$

2.

$$10 \div 5 = \underline{\quad}$$

3.

$$5 \div 5 = \underline{\quad}$$

4.

$$25 \div 5 = \underline{\quad}$$

5. $30 \div 5 = \underline{\quad}$

6. $35 \div 5 = \underline{\quad}$

7. $20 \div 5 = \underline{\quad}$

8. $5 \overline{) 25}$

9. $5 \overline{) 45}$

10. $5 \overline{) 40}$

11. $5 \overline{) 35}$

12. $5 \overline{) 20}$

Skills Practice**3NS2.3, 3MR2.3***Divide by 5***Divide.**

1. $25 \div 5 =$ _____

2. $15 \div 5 =$ _____

3. $10 \div 5 =$ _____

4. $40 \div 5 =$ _____

5. $30 \div 5 =$ _____

6. $35 \div 5 =$ _____

7. $5 \div 5 =$ _____

8. $45 \div 5 =$ _____

9. $20 \div 5 =$ _____

10. $5 \overline{) 15}$

11. $5 \overline{) 30}$

12. $5 \overline{) 35}$

13. $5 \overline{) 25}$

14. $5 \overline{) 20}$

15. $5 \overline{) 5}$

16. $5 \overline{) 45}$

17. $5 \overline{) 40}$

Solve.

18. Rudy spent \$30 to buy 5 shuttle models. Each model costs the same amount. How much money did each model cost?

20. Each magazine costs \$5. Jeremy has \$35. How many magazines can Jeremy buy?

19. There are 40 people on the Space Rocket ride at the amusement park. Each car holds 5 people. All the cars are full. How many cars does the ride have?

21. There are 30 blueberries in a bowl. Gina and her four friends each eat the same number of blueberries. If they eat all of the blueberries in the bowl, how many will they each eat?

*Problem-Solving Investigation***Choose a Strategy**

Chaz is putting away his books. He has 5 mysteries, 6 novels, 3 picture books, and 2 dictionaries. He wants to put the same number of books on each shelf. His book case has 4 shelves. How many books should Chaz put on each shelf?

Step 1 Understand	<p>You know: Chaz has 5 mysteries, 6 novels, 3 picture books, and 2 dictionaries. He wants to put away the same number on each of 4 shelves.</p> <p>You need to find out: How many books should Chaz put on each shelf?</p>																
Step 2 Plan	<p>You need to look at how to arrange items. So, the <i>draw a picture</i> strategy is a good choice.</p>																
Step 3 Solve	<p>Draw a book case with 4 shelves. Write a letter to represent each kind of book. Fill the shelves until all the letters are used up. Count the number of books on each shelf.</p> <table border="1"> <tr> <td>M</td><td>M</td><td>N</td><td>P</td></tr> <tr> <td>M</td><td>N</td><td>N</td><td>P</td></tr> <tr> <td>M</td><td>N</td><td>N</td><td>D</td></tr> <tr> <td>M</td><td>N</td><td>P</td><td>D</td></tr> </table>	M	M	N	P	M	N	N	P	M	N	N	D	M	N	P	D
M	M	N	P														
M	N	N	P														
M	N	N	D														
M	N	P	D														
Step 4 Check	<p>Look back at the problem. The total number of books is 16. Since $16 \div 4 = 4$, you know the answer is correct.</p>																

Reteach**3MR1.1, 3NS2.3***Problem-Solving Investigation (Continued)*

Use any strategy shown below to solve. Tell what strategy you used.

- Act it out
- Draw a picture
- Look for a pattern

1. There are 25 people riding on a bus. If there were 5 stops and an equal number of people got on at each stop, how many people got on the bus at each stop?

2. If 6 people got on the bus at each stop for 3 stops, how many people in all are on the bus?

3. The first bus of the day brought 25 people to their destinations. The second bus of the day brought 18 people to their destinations. How many more people rode on the first bus than the second bus?

4. 14 children played the first game, 10 children played the second game, and 6 played the third. If this pattern continues, how many children played the fourth game?

5. Jan taught everyone the bunny hop dance. She said you take 3 hops forward, 4 hops back, 3 hops to the right, and 2 hops to the left. Lynne and Heather tried it out. If Lynne and Heather both did the dance, how many total hops did the two girls take?

Problem-Solving Investigation

Use any strategy shown below to solve. Tell what strategy you used.

- Act it out
- Draw a picture
- Look for a pattern

1. Heather is planning a birthday party for her sister. If party favors cost \$5 each and 10 people will be at the party, how much will Heather have to spend?

2. Heather chooses 6 red balloons, her brother chooses 4 yellow balloons, and her mother adds 6 blue ones. How many balloons will they have for the party?

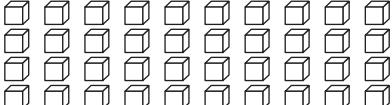
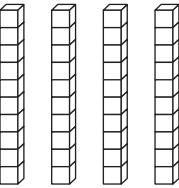
3. Heather painted a pattern on the white paper tablecloth. She painted 3 red roses in the center. To the right of the roses, she painted a yellow daisy. To the left of the roses, she painted a bluebell. She repeated this pattern across the whole tablecloth. There are 15 red roses in all. How many yellow daisies are there?

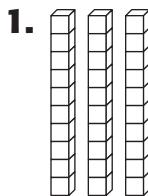
4. Heather's sister got 16 gifts. She divided her gifts into 2 equal groups, so she could carry them to her room. How many gifts were in each group?

6-7**Reteach***Divide by 10*

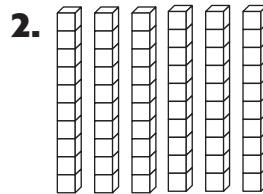
You can use models to divide.

Divide $40 \div 10$.

Show 40 ones using models.	Count the number of groups of ten.	
		There are 4 groups of 10 in 40 So, $40 \div 10 = 4$.

Divide. You may use models.

$30 \div 10 = \underline{\quad}$



$70 \div 10 = \underline{\quad}$

3. $20 \div 10 = \underline{\quad}$

4. $40 \div 10 = \underline{\quad}$

5. $60 \div 10 = \underline{\quad}$

6. $90 \div 10 = \underline{\quad}$

7. $70 \div 10 = \underline{\quad}$

8. $80 \div 10 = \underline{\quad}$

9. $50 \div 10 = \underline{\quad}$

10. $10 \div 10 = \underline{\quad}$

11. $30 \div 10 = \underline{\quad}$

12. $10 \overline{) 10}$

13. $10 \overline{) 30}$

14. $10 \overline{) 20}$

15. $10 \overline{) 60}$

16. $10 \overline{) 80}$

17. $10 \overline{) 40}$

18. $10 \overline{) 90}$

19. $10 \overline{) 70}$

20. $10 \overline{) 50}$

21. $10 \overline{) 0}$

Skills Practice*Divide by 10***Divide.**

1. $70 \div 10 =$ _____

2. $10 \div 10 =$ _____

3. $60 \div 10 =$ _____

4. $20 \div 10 =$ _____

5. $30 \div 10 =$ _____

6. $90 \div 10 =$ _____

7. $50 \div 10 =$ _____

8. $80 \div 10 =$ _____

9. $40 \div 10 =$ _____

10. $10 \overline{) 20}$

11. $10 \overline{) 50}$

12. $10 \overline{) 10}$

13. $10 \overline{) 0}$

14. $10 \overline{) 30}$

ALGEBRA Solve. Find the missing number.

15. $60 \div \boxed{\quad} = 6$

16. $\boxed{\quad} \div 10 = 9$

17. $80 \div 10 = \boxed{\quad}$

18. $40 \div \boxed{\quad} = 4$

19. $\boxed{\quad} \div 10 = 7$

20. $50 \div 10 = \boxed{\quad}$

Solve.

21. Thirty people paddle down the river on rafts. Each raft holds 10 people. How many rafts are on the river?

22. The Christo family spends \$70 on 10 fishing permits. How much does each permit cost?

23. You hike a total of 60 miles in 10 days. Each day you hike the same distance. How many miles do you hike each day?

24. A group of park visitors spends \$50 for 10 tickets for a raft ride. How much does each ticket cost?

Division Properties

When you divide any number (except 0) by itself, the quotient is 1.

Kelly has 5 model rockets in 5 different boxes. How many model rockets are in each box?

$$5 \div 5 = 1$$

There is 1 rocket in each box.

When you divide any number by 1, the quotient is the original number.

Kelly wants to put 1 model rocket on each shelf.

She has 5 model rockets.

How many shelves does she need?

$$5 \div 1 = 5$$

She needs 5 shelves.

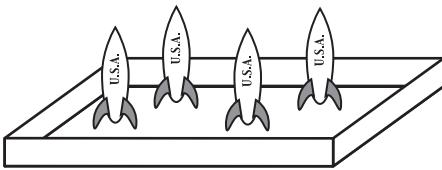
When you divide 0 by any number (except 0), the quotient is 0.

Kelly has 3 boxes and no model rockets. How many rockets are in each box?

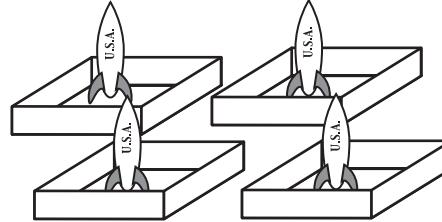
$$0 \div 3 = 0$$

There are no rockets in any of the boxes.

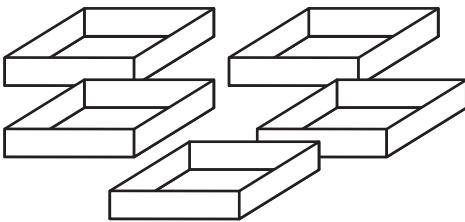
Remember: You cannot divide a number by 0.

Divide.**1.**

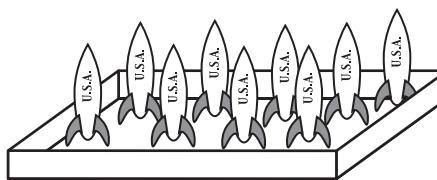
$$4 \div 1 = \underline{\quad}$$

2.

$$4 \div 4 = \underline{\quad}$$

3.

$$0 \div 5 = \underline{\quad}$$

4.

$$9 \div 1 = \underline{\quad}$$

$$5. \ 3 \div 1 = \underline{\quad}$$

$$6. \ 6 \div 6 = \underline{\quad}$$

$$7. \ 0 \div 8 = \underline{\quad}$$

$$8. \ 7 \div 7 = \underline{\quad}$$

$$9. \ 6 \div 1 = \underline{\quad}$$

$$10. \ 0 \div 3 = \underline{\quad}$$

Skills Practice*Division Properties***Divide.**

1. $0 \div 3 =$ _____

2. $5 \div 5 =$ _____

3. $4 \div 1 =$ _____

4. $9 \div 1 =$ _____

5. $3 \div 3 =$ _____

6. $5 \div 1 =$ _____

7. $8 \div 8 =$ _____

8. $0 \div 5 =$ _____

9. $0 \div 7 =$ _____

10. $5 \overline{)0}$

11. $7 \overline{)7}$

12. $4 \overline{)0}$

13. $1 \overline{)6}$

14. $2 \overline{)0}$

15. $4 \overline{)4}$

16. $1 \overline{)4}$

17. $5 \overline{)5}$

18. $3 \overline{)0}$

19. $6 \overline{)6}$

ALGEBRA Write +, -, ×, or ÷ to make the number sentence true.

20. $7 \bigcirc 7 = 1$

21. $9 \bigcirc 9 = 0$

22. $6 \bigcirc 6 = 12$

23. $5 \bigcirc 1 = 5$

24. $0 \bigcirc 3 = 3$

25. $4 \bigcirc 4 = 1$

Solve.

26. Jason buys 3 model rockets and shares them with 2 friends. How many rockets does each boy have?

27. Lisa has 3 key chains. If each chain holds 1 key, how many keys does Lisa have?

28. Myra draws and cuts out 8 planets for a class project. She pastes each planet on a separate sheet of paper. How many sheets of paper did Myra use?

29. Alonzo has 1 bookbag. It has 5 keychains on it. How many keychains does Alonzo have?

7-1**Reteach****Divide by 3**

You can use models to divide.

Find $18 \div 3$. There are 18 stars in all. Make 3 groups with 6 stars in each group. $18 \div 3 = 6$

**Divide.**

$12 \div 3 = \underline{\quad}$



$15 \div 3 = \underline{\quad}$



$24 \div 3 = \underline{\quad}$



$9 \div 3 = \underline{\quad}$



$27 \div 3 = \underline{\quad}$



$3 \div 3 = \underline{\quad}$

7. $21 \div 3 = \underline{\quad}$

8. $15 \div 3 = \underline{\quad}$

9. $24 \div 3 = \underline{\quad}$

10. $6 \div 3 = \underline{\quad}$

11. $27 \div 3 = \underline{\quad}$

12. $3 \div 3 = \underline{\quad}$

13. $3 \overline{) 18}$

14. $3 \overline{) 21}$

15. $3 \overline{) 12}$

16. $3 \overline{) 27}$

17. $3 \overline{) 24}$

Skills Practice*Divide by 3***Divide.**

1. $18 \div 3 =$ _____

2. $9 \div 3 =$ _____

3. $6 \div 3 =$ _____

4. $24 \div 3 =$ _____

5. $3 \div 3 =$ _____

6. $21 \div 3 =$ _____

7. $12 \div 3 =$ _____

8. $27 \div 3 =$ _____

9. $15 \div 3 =$ _____

10. $3 \overline{) 12}$

11. $3 \overline{) 18}$

12. $3 \overline{) 6}$

13. $3 \overline{) 21}$

14. $3 \overline{) 27}$

15. $3 \overline{) 3}$

16. $3 \overline{) 15}$

17. $3 \overline{) 24}$

ALGEBRA Complete.

18. Rule: Divide by 3

Input	Output
18	
24	
27	

19. Rule: Multiply by 3

Input	Output
7	
	27
1	

20. Rule: _____

Input	Output
14	11
12	
	15

Solve.

21. Miss Gomez's 21 third-grade students work in 3 equal groups to make models of a spacecraft. How many students are in each group?

22. Chuck and his 2 brothers read 15 books about the solar system. Each boy read the same number of books. How many books did each boy read?

Name _____ Date _____

7-2**Reteach****3NS2.3***Divide by 4*

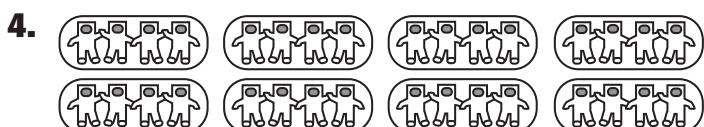
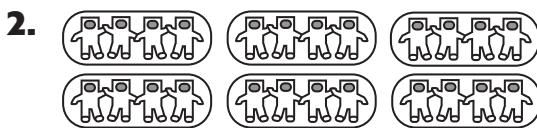
To divide the total number of objects, you make equal groups.

There are 20 astronauts. Divide the number of astronauts by 4.

To divide by 4, make equal groups of 4.



$$20 \div 4 = 5$$

Divide.

5. $8 \div 4 =$ _____

6. $16 \div 4 =$ _____

7. $12 \div 4 =$ _____

8. $28 \div 4 =$ _____

9. $36 \div 4 =$ _____

10. $4 \div 4 =$ _____

11. $4 \overline{) 24}$

12. $4 \overline{) 28}$

13. $4 \overline{) 16}$

14. $4 \overline{) 36}$

15. $4 \overline{) 32}$

16. $4 \overline{) 4}$

17. $4 \overline{) 20}$

18. $4 \overline{) 8}$

19. $4 \overline{) 40}$

20. $4 \overline{) 12}$

Skills Practice*Divide by 4***Divide.**

1. $12 \div 4 =$ _____

2. $8 \div 4 =$ _____

3. $20 \div 4 =$ _____

4. $28 \div 4 =$ _____

5. $24 \div 4 =$ _____

6. $4 \div 4 =$ _____

7. $36 \div 4 =$ _____

8. $32 \div 4 =$ _____

9. $16 \div 4 =$ _____

10. $4 \overline{) 16}$

11. $4 \overline{) 28}$

12. $4 \overline{) 4}$

13. $4 \overline{) 20}$

14. $4 \overline{) 40}$

15. $4 \overline{) 32}$

16. $4 \overline{) 8}$

17. $4 \overline{) 24}$

18. $4 \overline{) 36}$

19. $4 \overline{) 0}$

ALGEBRA Complete.

20. Rule: Multiply by 4

Input	Output
6	
9	
7	

21. Rule: Divide by 4

Input	Output
32	
20	
	6

22. Rule: _____

Input	Output
16	4
28	7
36	9

Solve. Use the data from the pictograph.

23. How many third-grade students went on the school trip?

24. There were 32 fourth-grade students on the school trip. How many symbols would you show on the graph for the fourth-grade students? Draw the symbols on the graph.

School Trip to the Planetarium

Grade	Number of Students
3	
4	

Each  stands for 4 students.

*Problem-Solving Strategy***Make a Table Strategy**

Which day had the most sign-ups? _____

Sign Up: After-School Games

Day	Names					
Monday	Jim	Barry	Chris	Seth	Eli	Taylor
	Ron	Tiffany	Josh	Donna	Bryan	
Tuesday	Ann	Steve	Tara	Pete	Lily	
	Aiko	Warren	Ian	Craig	Sereka	
Wednesday	Tod	Bailey	Carly	Sudi	Donna	Jani
					Beth	

Step 1
Understand**Be sure you understand the problem.**

Read carefully.

What do you know?

- There are _____ days for after-school games.
- There is a list of _____ for each day.

What do you need to find out?

- You need to find out which day had _____

- To do this, you need to know _____ sign-ups there were each day.

Step 2
Plan**Make a plan.**

A table can help you organize what you know.
Make a table to solve the problem.

*Problem-Solving Strategy (continued)***Step 3****Solve****Carry out your plan.**

Make a table.

Tally the _____ for each day. Write the total number of tallies for each day. Compare the _____ for each day.

Complete the table.

Sign-Up: After-School Games		
Day	Tally	Number
Monday		
Tuesday		10
Wednesday		

There are _____ sign-ups for Monday, _____ sign-ups for Tuesday, and _____ sign-ups for Wednesday.

_____ had the most sign-ups.

Step 4**Check****Is the solution reasonable?**

Reread the problem.

Does your answer match the data given in the problem? _____

What other strategy could you use to solve the problem?

Solve. Use the *make a table* strategy.

1. Donna is making a sign that says "Greetings, Chess Masters!" Which letter does she use the most?

2. Four friends were in a tournament. Judy came in sixth, Sam was ninth, Tim was third, Evelyn was fifth. In what order did the friends finish?

*Problem-Solving Strategy***Organize the data below in a table.****My Favorite Game****Computer:** Jessica, Michael, Akiko, Taylor, Aretha, Jamal, Rick, Paula**Board:** Erica, Lauren, Mark, Andrew, Allison**Card:** Justin, Carl, Dixie, Ben

Game	Tally	Number

Use your table to solve problems 1 and 2.**1.** Which game got the most votes?

2. Which game got the fewest votes?

For Exercises 3 and 4, use the shapes that Lorna drew.**3.** How many more stars than circles did Lorna draw? Make a table in the box.

--

4. Suppose that Lorna draws 2 more squares. How many squares will she have then?

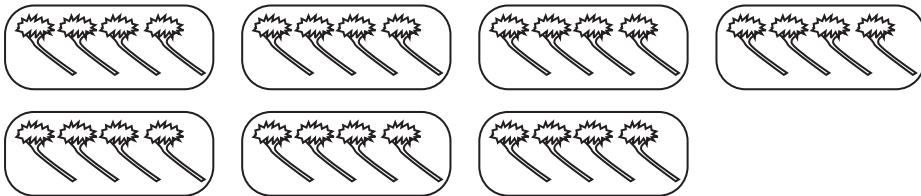
Name _____ Date _____

7-4**Reteach****3NS2.3***Divide by 6 and 7***You can make groups to help you divide.**

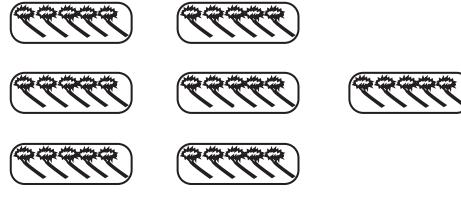
Suppose you have 28 wildflowers.

You want to make 7 groups of wildflowers.

How many wildflowers will you have in each group?



Number in All	Number of Groups	Number in Each Group
28	7	4

So, $28 \div 7 = 4$.**Complete the division sentence for each picture.**1. 2. 

$30 \div 6 = \underline{\quad}$

$35 \div 7 = \underline{\quad}$

Divide.

3. $54 \div 6 = \underline{\quad}$

4. $48 \div 6 = \underline{\quad}$

5. $56 \div 7 = \underline{\quad}$

6. $42 \div 6 = \underline{\quad}$

7. $28 \div 7 = \underline{\quad}$

8. $18 \div 3 = \underline{\quad}$

9. $30 \div 6 = \underline{\quad}$

10. $12 \div 6 = \underline{\quad}$

11. $42 \div 7 = \underline{\quad}$

12. $6 \overline{) 24}$

13. $7 \overline{) 21}$

14. $7 \overline{) 63}$

15. $7 \overline{) 35}$

16. $6 \overline{) 36}$

17. $7 \overline{) 49}$

Skills Practice**3NS2.3***Divide by 6 and 7***Divide.**

1. $12 \div 6 =$ _____

2. $35 \div 7 =$ _____

3. $24 \div 6 =$ _____

4. $7 \div 7 =$ _____

5. $30 \div 6 =$ _____

6. $42 \div 7 =$ _____

7. $18 \div 6 =$ _____

8. $56 \div 7 =$ _____

9. $54 \div 6 =$ _____

10. $48 \div 6 =$ _____

11. $21 \div 7 =$ _____

12. $63 \div 7 =$ _____

13. $7 \overline{)28}$

14. $6 \overline{)36}$

15. $7 \overline{)49}$

16. $6 \overline{)24}$

17. $6 \overline{)18}$

18. $6 \overline{)48}$

19. $7 \overline{)63}$

20. $7 \overline{)21}$

21. $6 \overline{)42}$

22. $7 \overline{)14}$

23. $7 \overline{)56}$

24. $7 \overline{)42}$

25. $6 \overline{)54}$

26. $6 \overline{)30}$

27. $7 \overline{)70}$

ALGEBRA Compare. Write $>$, $<$, or $=$.

28. $28 \div 7 \bigcirc 5$

29. $49 \div 7 \bigcirc 5$

30. $49 \div 7 \bigcirc 8$

31. $7 \div 7 \bigcirc 6 \div 6$

32. $42 \div 7 \bigcirc 42 \div 7$

33. $35 \div 7 \bigcirc 30 \div 6$

34. $24 \div 3 \bigcirc 24 \div 6$

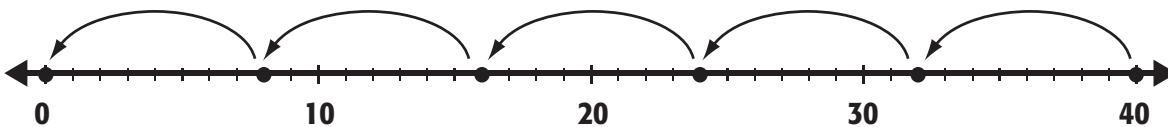
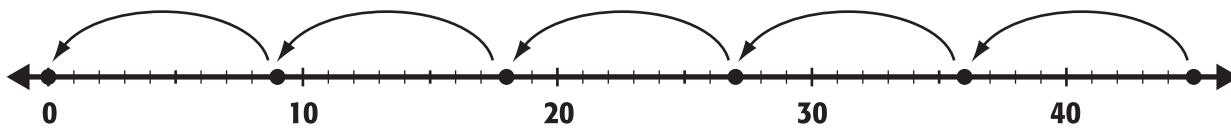
35. $56 \div 8 \bigcirc 9$

36. $36 \div 6 \bigcirc 54 \div 9$

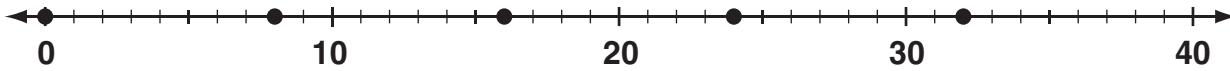
Solve.

37. Alberto plants 42 tree seedlings in 6 rows. Each row has the same number of tree seedlings. How many rows of tree seedlings does Alberto plant?

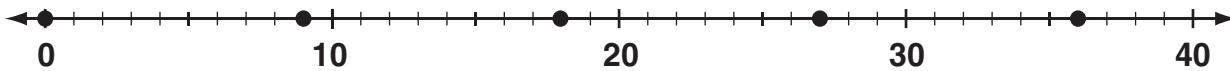
38. Six park rangers take 54 people on a tour of Great Bear National Park. Each ranger has the same number of tourists. How many people are in each group?

7-5**Reteach****3NS2.3***Divide by 8 and 9*Find $40 \div 8$.Skip count to divide. So, $40 \div 8 = 5$.Find $45 \div 9$.**Skip count on the number line to find the answer.****Draw arrows on the number line to show your work.****Then complete the number sentence.**

1. $32 \div 8 =$ _____



2. $36 \div 9 =$ _____

**Divide.**

3. $48 \div 8 =$ _____

4. $27 \div 9 =$ _____

5. $56 \div 8 =$ _____

6. $54 \div 9 =$ _____

7. $81 \div 9 =$ _____

8. $9 \div 9 =$ _____

9. $72 \div 8 =$ _____

10. $63 \div 9 =$ _____

11. $45 \div 9 =$ _____

Skills Practice*Divide by 8 and 9***Divide.**

1. $18 \div 9 =$ _____

2. $24 \div 8 =$ _____

3. $36 \div 9 =$ _____

4. $72 \div 8 =$ _____

5. $54 \div 9 =$ _____

6. $40 \div 8 =$ _____

7. $8 \div 8 =$ _____

8. $27 \div 9 =$ _____

9. $81 \div 9 =$ _____

10. $8 \overline{) 32}$

11. $9 \overline{) 9}$

12. $9 \overline{) 45}$

13. $8 \overline{) 16}$

14. $9 \overline{) 72}$

15. $9 \overline{) 63}$

16. $8 \overline{) 64}$

17. $9 \overline{) 54}$

18. $8 \overline{) 56}$

19. $8 \overline{) 48}$

ALGEBRA Complete the tables.20. **Rule:** Divide by 9.

Input		72		81
Output	7		6	

21. **Rule:**

Input	40	48	56	72
Output	5	6	7	9

Solve.

22. How many third-grade students volunteered for the Clean-Up Squad?

23. If 56 fourth-grade students volunteer, how many symbols should you show on the graph? Draw the symbols.

Volunteer Clean-Up Squad

Grade	Number of Students
3	
4	_____

Each  stands for 8 students.

Determine Unit Cost

Unit cost is the cost for one item. To find unit cost, use division.

Jason wants to buy 1 marker. The price for 5 markers is \$0.50. How much will it cost to buy only one marker?

Step 1 What do you know?	5 markers cost 50¢. The total cost is 50¢. The number of items is 5.
Step 2 Divide the total cost by number of items.	$50 \div 5 = 10$ It will cost 10¢ for one marker.

Find each unit cost.

1. 3 T-shirts for \$27 _____
2. 2 hats for \$12 _____
3. 4 gym shorts for \$24 _____
4. 3 pairs of socks for \$3 _____
5. 3 lunches for \$6 _____

Solve.

6. Liz has \$60 to buy 6 teddy bears. The teddy bears are \$8 each. What is her change? _____
7. Cornbread muffins are \$12 for a dozen. If Simon wants to buy 5 muffins, how much will they cost? _____

Skills Practice*Determine Unit Cost***Find each unit cost.**

1. 3 bananas for \$3 _____
2. 6 apples for \$6 _____
3. 1 pad of paper for \$3 _____
4. 3 posters for \$21 _____
5. 2 basketballs for \$20 _____
6. 5 balloons for \$5 _____

Find the unit cost to determine the better buy.

7. 5 teddy bears for \$30
2 teddy bears for \$18 _____
8. 10 tickets for \$20
3 tickets for \$9 _____

ALGEBRA Find the number of items.**Then, complete the table.****9.**

Number of Items	
Input, Total Cost	Output, Unit Cost
\$40	\$5
	\$6
\$32	
	\$1
\$56	
	\$9

10.

Number of Items	
Input, Total Cost	Output, Unit Cost
\$81	\$9
	\$6
	\$4
	\$8
\$63	
\$45	

*Problem-Solving Investigation***Choose the best strategy.**

Alicia wants to mail 12 letters and 5 postcards. A page of 6 stamps to mail letters costs \$2, and a page of 5 stamps to mail postcards costs \$1. Alicia has a \$10-bill. How much change will she get after paying for the stamps?

Step 1 Understand	<p>What do you know? You know that Alicia has 12 letters and 5 postcards to mail. You also know that it costs \$2 for 6 letter stamps and \$1 for 5 postcard stamps. Alicia will pay with a \$10-bill.</p> <p>What do you need to find? How much change Alicia will get after paying for the stamps.</p>						
Step 2 Plan	<p>Choose a strategy.</p> <p>Making a table will help organize the facts. The table will have two columns, one for letter stamps and one for postcard stamps. The cost will be listed in the rows.</p> <p>Then, total the cost and subtract it from \$10 to find the amount Alicia will get back in change.</p>						
Step 3 Solve	<table border="1"> <thead> <tr> <th>Letter Stamps</th><th>Postcard Stamps</th></tr> </thead> <tbody> <tr> <td>\$2 for 6</td><td>\$1 for 5</td></tr> <tr> <td>\$2 for 6</td><td></td></tr> </tbody> </table> <p>Total: \$4 for 12 letter stamps + \$1 for 5 postcard stamps = \$5</p> <p>$\\$10 - \\$5 = \\5</p> <p>So, Alicia will get \$5 in change.</p>	Letter Stamps	Postcard Stamps	\$2 for 6	\$1 for 5	\$2 for 6	
Letter Stamps	Postcard Stamps						
\$2 for 6	\$1 for 5						
\$2 for 6							

*Problem-Solving Investigation (continued)***Step 4****Check**

Look back at your answer. Does it make sense?

Use division to check.

Alicia will need 2 pages of letter stamps because $12 \div 6 = 2$. She will need 1 page of postcard stamps because $5 \div 1 = 1$.

The cost for 2 pages of letter stamps and 1 page of postcard stamps is $\$2 + \$2 + \$1 = \5 . The change for $\$5$ from $\$10$ is $\$5$.

So, the answer is correct.

Use any strategy shown below to solve. Tell what strategy you used.

- Act it out
- Draw a picture
- Look for a pattern
- Make a table

1. What is the next number in the pattern?

53, 58, 63, 68, _____.

2. Margie and Jill have 35 bottles of juice. Margie drinks 2 bottles a day, and Jill drinks 3.

How many days will the juice last? _____

3. Juan planted 20 seeds. For every 5 seeds he planted, 4 grew into plants. How many plants did Juan have?

*Problem-Solving Investigation***Solve. Use any strategy.**

1. ALGEBRA What is the next number in the pattern?

50, 48, 46, 44, _____

2. Evita is arranging pictures on the wall. She put 3 pictures on the top row. Then, she put 6 pictures on the second row. She put 9 pictures on the third row. She continues this pattern for 2 more rows. How many pictures does Evita have in all?

3. Russ and Marty bought wood for a tree house. They bought 8 long pieces of wood. Each piece cost \$5. How much did they spend altogether?

4. The boys have 8 long pieces of wood. They need 24 shorter pieces of wood of equal length. How many parts should they saw each long piece of wood into?

5. The boys bought 4 pounds of nails for \$16. They got \$4 in change. How much money did they start with?

6. The boys want to buy shingles for their roof, and they have \$40 left. If they spend all of their money and get 10 shingles, how much did each shingle cost?

Algebra: Expressions and Equations

An **expression** is a number sentence that contains numbers, variables, and at least one operation symbol.

An **equation** is a mathematical sentence that contains an equals sign.

Is **2 + 3** an expression? _____

Why? _____

Is **= 5** an expression? _____

Why? _____

Is **2 + 3 = 5** an equation? _____

Why? _____

Write an expression and create an equation for the situation.

1. In the playground, there are 2 swing sets with 3 swings for older children and 6 swing sets with 1 swing each for younger children. Write an expression that shows that younger children have the same amount of swings as the older ones.

Choose one of the symbols $+$, $-$, \times , or \div to make the equation true.

2. $5 - 3 = 2 \bigcirc 1$

4. $10 \bigcirc 20 = 30$

3. $27 \bigcirc 3 = 3 \times 10$

5. $49 \bigcirc 7 = 7$

*Algebra: Expressions and Equations***Write an expression and create an equation for each situation.**

1. Juan had 8 train cars. He lost 2. Then he received 4 cars for his birthday. How many cars does Juan have now?

2. There are 20 action figures and 5 boys. If everyone has equal amounts, how many figures can each boy have to play with?

3. Alma has a collection of 25 dolls from around the world. She sold 2 dolls. Her aunt gave her a new set of 6 Japanese dolls. How many dolls does Alma have now?

Choose one of the symbols $+$, $-$, \times , or \div to make the equation true.

4. $25 \bigcirc 5 = 4 \times 5$

5. $80 - 8 = 9 \bigcirc 8$

6. $14 \div 2 = 6 \bigcirc 1$

7. $56 \bigcirc 6 = 10 \times 5$

8. $20 - 4 = 8 \bigcirc 2$

9. $4 \bigcirc 6 = 20 + 4$

10. $70 + 2 = 9 \bigcirc 8$

11. $18 \div 2 = 3 \bigcirc 3$

Find a number that makes the equation true.

12. $9 \times 3 = \underline{\hspace{2cm}} + 2$

13. $9 \times 9 = 80 + \underline{\hspace{2cm}}$

14. $3 \times 3 = \underline{\hspace{2cm}} + 2$

15. $6 \times 9 = 50 + \underline{\hspace{2cm}}$

16. $8 \times 3 = \underline{\hspace{2cm}} + 2$

17. $4 \times 4 = \underline{\hspace{2cm}} + 8$

Algebra: Translate Words to Expressions

Elena went to the beach 6 times this month. Dolores went to the beach 4 more times than Elena did. Write an expression that shows the amount of times Dolores went to the beach.

Step 1 Reread the problem and find the key words that will tell you what operation to use.	Dolores went 4 <i>more</i> times The word <i>more</i> means addition.
Step 2 Put the numbers with the operation.	Elena went <u>6</u> times. Dolores went 4 <i>more</i> times. $6 + 4 = 10$ Dolores went to the beach 10 times.

Write each phrase as an expression. Then solve.

1. the *difference* between 23 and 46 _____
2. 56 *together* with 6 _____
3. 3, 4, and 5 items *in all* _____
4. 4 *less than* 12 _____
5. the *product* of 4 and 5 _____
6. 7 *times* 4 _____
7. 18 *minus* 10 _____
8. 20 *divided by* 4 _____

Write equations for the situation. Then solve.

9. Jen fed the family dog once a day for 15 days. Her brother fed the dog twice a day for 10 days. Who fed the dog more?

Skills Practice*Algebra: Translate Words to Expressions***Write each phrase as an expression. Then solve.**

1. 8 boxes each with 0 books _____
2. the *difference* between 91 and 85 _____
3. the *total* of 4 clubs with 10 students
in each club _____
4. play checkers 2 *times a week* for 8 weeks _____
5. 45 fish *divided equally* among 9 tanks. _____
6. 89 *less than* 99 _____
7. 6 *more than* 24 _____
8. the *product* of 7 and 9 _____

Write two word phrases for each expression.

9. $63 \div 9$ _____
10. 4×8 _____
11. $10 \div 2$ _____
12. 7×6 _____
13. 3×2 _____

Write an expression for the situation. Then solve.

14. The school provided oranges for the swim team of 10 students. Ten oranges were bought, and each orange was cut into 6 sections. Each child only ate 4 sections. How many orange sections were left over?

8-1**Reteach****3MG1.1***Length to the Nearest Half Inch*

Remember that length is the measurement of distance between two end points. You can use almost anything to measure length.

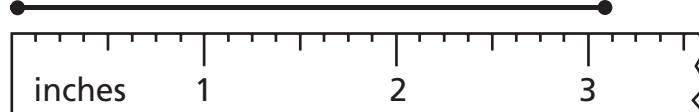
Use the nonstandard unit of a penny to measure length.



Count the number of pennies.

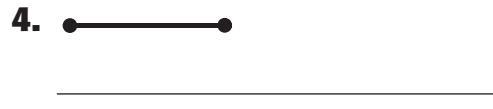
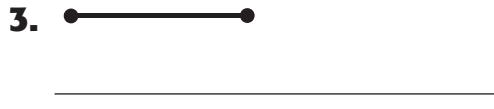
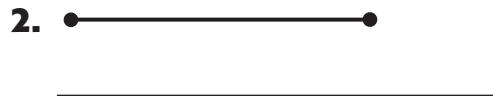
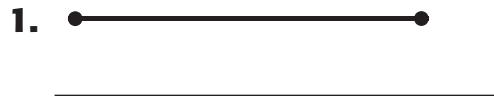
The line is about 4 pennies long.

An inch is a standard unit. Use an inch ruler to measure length.



Place the ruler so that the left edge or the "0" mark lines up with the endpoint. Find the half inch mark nearest to the other endpoint.

The line is 3 inches long to the nearest half inch.

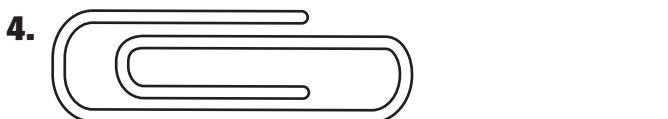
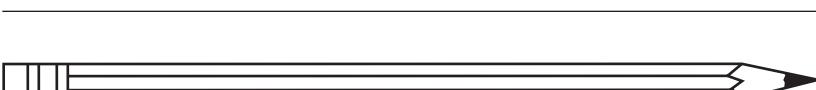
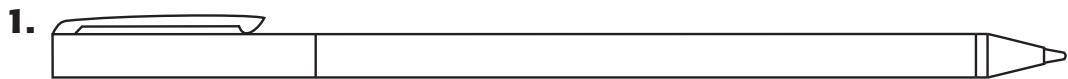
Measure to the nearest half inch. Write the length.**Use an inch ruler. Draw a line on a separate sheet of paper for each length.**

5. 7 inches

6. 5 inches

7. 2 inches

8. 1 inch

*Length to the Nearest Half Inch***Measure each to the nearest half inch.****Use an inch ruler. Draw a line for each length.**

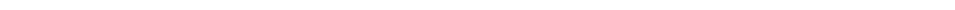
5. $6\frac{1}{2}$ inches



6. $5\frac{1}{2}$ inches



7. $2\frac{1}{2}$ inches



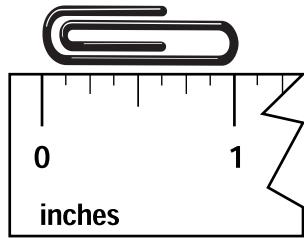
8. $3\frac{1}{2}$ inches



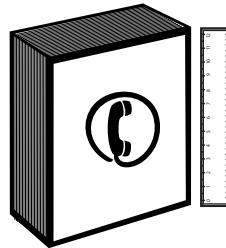
Customary Units of Length

You can use a ruler or yardstick to measure lengths.

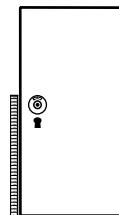
This is **1 inch (in.)**.



A **foot (ft)** is 12 inches.
A telephone book
is about 1 foot long.



A **yard (yd)** is 3 feet,
or 36 inches.
A doorknob is about
1 yard above the floor.



Choose the most appropriate unit to measure each length.
Choose from *inch, foot, yard, or mile*.

1. length of a crayon

2. distance across a state

3. height of a wall

Choose the best estimate.

4. about 8 in.
a telephone
a desk top

5. about 1 yd
a baseball
a baseball bat

6. about 1 ft
a computer keyboard
a computer mouse

7. about 2 yd
a door's height
a baby's height

8. about 8 ft
a room's height
your height

9. about 7 yd
a parking sticker
a parking space

Skills Practice

3MG1.1

Customary Units of Length

Choose the best estimates.

1. length of a calculator
6 inches or 6 yards

2. length of a notebook
12 feet or 12 inches

3. distance between San Diego, CA
and Houston, TX
1,300 inches or 1,300 miles

4. width of a shoe
3 inches or 3 feet

5. height of a truck
6 inches or 6 feet

6. length of a shoe lace
16 inches or 16 yards

Choose the most appropriate unit to measure each length.**Choose from inch, foot, yard, or mile .**

7. length of a crayon

8. height of a door

9. distance from home to school

10. width of your bedroom

11. length of a football field

12. thickness of a book

Problem-Solving Strategy

Joan buys some tickets. Each ticket costs \$3. She gives the clerk \$20 and gets \$2 in change. How many tickets does Joan buy?

Step 1 Understand	Make sure you understand the problem. <ul style="list-style-type: none"> • What do you know? Joan buys some tickets. Each ticket costs \$3. She gives the clerk \$20, and she gets \$2 in change. • What do you need to find? How many tickets Joan buys.
Step 2 Plan	Make a plan. You can work backward to find the total.
Step 3 Solve	Carry out your plan. Find the total amount spent on tickets. $\$20 - \$2 = \$18$ Joan spent a total of \$18. Find the number of tickets by using division. $\$18 \text{ total} \div \$3 \text{ per ticket} = 6 \text{ tickets}$ Joan bought 6 tickets.
Step 4 Check	Check your answer. Does it make sense?

Solve. Use the *work backward* strategy.

1. John's dad bought pizzas for a party. He gave the cashier one \$20-bill. The cashier gave him \$5 in change. Each of the three pizzas cost the same amount. How much did each pizza cost?
2. On Saturday, Sam went to the library for 30 minutes. Then he went to his friend's house for an hour. Afterwards, he played soccer for 45 minutes. He finished playing soccer at 5:45. What time did Sam go to the library?

Problem-Solving Strategy (continued)

3. Kevin gave 6 football cards to James and 7 football cards to Mike. He was given 25 more football cards for his birthday. Kevin now has 55 football cards. How many did he have to start with?

4. Sally rode her bike for 5 miles Monday, some miles on Tuesday, and 8 miles Wednesday. She did not ride any other days of the week. If she rode her bike 19 miles this week, how many miles did she ride on Tuesday?

5. After school Laura has band practice, then soccer practice for 1 hour. After that she goes to the library for an hour. If she arrives home 3 hours after school is out, how much time does she spend at band practice?

6. Mr. Johnson has pencils in a box for students to use. He let 6 students borrow pencils today and 8 students borrow pencils yesterday. He counts the pencils at the end of the day and finds that there are 20 pencils in the box. How many pencils did he have in the box at the beginning of the day yesterday?

7. Hakeem spends \$100 of his money from his summer job on clothes and supplies for school. If he has \$25 leftover, how much money did he have originally?

8. Daniel ran 17 miles this week. He ran the same number of miles on Tuesday as he did on Monday. He ran 3 miles on Wednesday and 4 miles on both Thursday and Friday. How many miles did he run on Monday?

*Problem-Solving Strategy***Solve. Use the *work backward* strategy.**

1. Sarah biked for 20 minutes on Monday, for a while on Tuesday, and 25 minutes on Wednesday. During those three days, she biked a total of one hour. How much time did she bike on Tuesday?

2. On Mike's four-day vacation, he took 25 photographs the first day and 41 photographs on the second day. On the third day, he took twice as many photographs as he did the first day. If he took a total of 151 photographs during the four days, how many did he take on the fourth day?

3. The garden club spent \$23 on containers, \$15 on seeds, and some money on soil. They spent \$55 altogether. How much did they spend on soil?

4. Maria plants 48 flowers in rows. The first row has 3 flowers. The second row has 5. The third row has 7 flowers. The fourth row has 9 flowers. This pattern continues for the rest of the rows. How many rows of flowers did Maria plant?

Solve. Use any strategy.

5. Nadia's garden has a length of 45 feet and a width of 32 feet. How much longer is the length than the width?

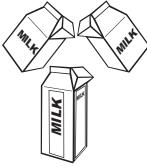
Strategy: _____

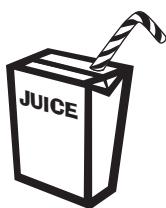
6. Fires can burn forests at a rate of up to 10 miles per hour. How many miles can a forest fire travel in 3 hours?

Strategy: _____

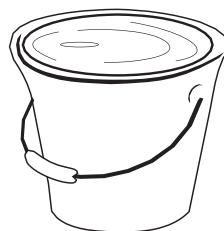
8-4**Reteach****3MG1.1***Customary Units of Capacity*

Capacity tells how much an object can hold. You measure capacity in cups, pints, quarts, and gallons.

			
1 cup (c)	2 c = 1 pint (pt)	2 pt = 1 quart (qt) or 4 c = 1 qt	4 qt = 1 gallon (gal)

Ring the letter of the estimate.**1.**

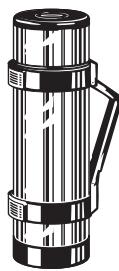
A. 1 c
B. 1 pt
C. 1 qt

2.

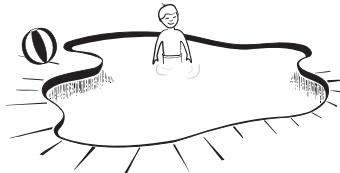
A. 1 pt
B. 1 qt
C. 1 gal

3.

A. 1 c
B. 1 qt
C. 1 gal

4.

A. 10 c
B. 10 qt
C. 10 gal

5.

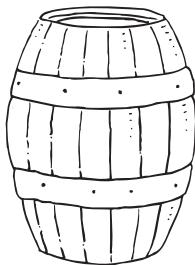
A. 1,000 c
B. 1,000 qt
C. 1,000 gal

6.

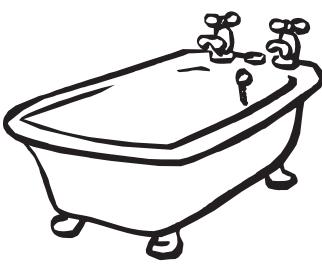
A. 2 c
B. 2 qt
C. 2 gal

Choose the most appropriate unit to measure each capacity.
Choose from *cup*, *pint*, *quart*, or *gallon*.

1.



2.



3.



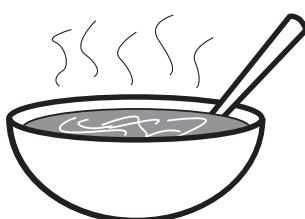
Choose the best estimate.

4.



2 qt or 2 gal

5.



1 pt or 1 gal

6.



4 qt or 4 gal

7.



1 c or 1 gal

8.



2 pt or 2 gal

9.



1 c or 1 gal

Problem Solving Investigation

Sabrina has collected trading cards for 5 years. She now has 83 trading cards. In the second year, she collected 34 more cards than she did the first year. She only collected 12 cards her third and fourth years. In her fifth year she collected 9 cards. How many did she collect in the first year?

Understand	<p>Be sure you understand the problem.</p> <p>What do you know?</p> <ul style="list-style-type: none"> • You know Sabrina has 83 trading cards. • You know she collected 34 more cards in the second year than in the first year. <p>What do you need to find?</p> <ul style="list-style-type: none"> • You need to find how many cards Sabrina collected in the first year. 																								
Plan	<p>Make a plan.</p> <p>Choose a strategy.</p> <p>Organize the data in to a table to help you solve the problem.</p>																								
Solve	<p>First, fill in what you know.</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Cards Collection</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> </tr> <tr> <td>2</td> <td></td> </tr> <tr> <td>3</td> <td>12</td> </tr> <tr> <td>4</td> <td>12</td> </tr> <tr> <td>5</td> <td>9</td> </tr> </tbody> </table> <p>You know Sabrina now has 83 cards. $83 - 12 - 12 - 9 = 50$ cards</p> <p>You know Sabrina collected 34 more cards in the second year than in the first year. So, $50 - 34 = 16$</p> <p>Divide $16 \div 2 = 8$</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Cards Collection</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>8</td> </tr> <tr> <td>2</td> <td>42</td> </tr> <tr> <td>3</td> <td>12</td> </tr> <tr> <td>4</td> <td>12</td> </tr> <tr> <td>5</td> <td>9</td> </tr> </tbody> </table> <p>Sabrina collected 8 cards in the first year. $8 + 34 = 42$</p> <p>Sabrina collected 42 cards in the second year.</p> <p>So, she collected 8 cards in the first year.</p>	Year	Cards Collection	1		2		3	12	4	12	5	9	Year	Cards Collection	1	8	2	42	3	12	4	12	5	9
Year	Cards Collection																								
1																									
2																									
3	12																								
4	12																								
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Year	Cards Collection																								
1	8																								
2	42																								
3	12																								
4	12																								
5	9																								

Problem Solving Investigation (continued)

Check	Is the solution reasonable? Reread the problem. Check your answer. $8 + 42 + 12 + 12 + 9 = 83 \checkmark$
--------------	--

Use any strategy to solve. Tell what strategy you used.

1. Spencer biked two miles to get to his Aunt's house. Then he hiked twice as far to the park. How many miles was the total trip?

3. What two numbers are missing in the pattern below?

4, 8, 12, 16, 20, 28,

2. The department store is having a sale on sports equipment. All of the equipment is on sale at half the original price. Heather purchases 3 soccer balls, 4 water bottles, and 1 pair of running shoes. How much money did she spend?

4. James walked his dog 3 blocks to his friend's house. On the way home, they walked twice as long. How many blocks was the trip altogether?

5. The class has 20 students. Each student has 2 erasers at their desk. How many erasers are there altogether?

6. Annie gave cards to her friends and family. 20 cards were for her classmates, 1 card was for her teacher and 4 cards were for other people. How many cards did she give out total?

Item	Original Price
Baseball	\$6
Soccer ball	\$14
Running shoes	\$40
Water bottle	\$4
Basketball hoop	\$150

*Problem-Solving Investigation***Use any strategy to solve. Tell what strategy you used.**

1. Claire was having a party. She invited 4 friends from her ballet class, 3 friends from school, and 5 friends from other places. How many people were invited in all?

3. Matt and Rachel sold apple cider at the craft fair. They sold 80 cups in the first hour, 60 cups in the second hour, and 40 cups in the third hour. If the pattern continues, how many pints did they sell at the end of the fourth hour?

5. There are 7 members of the Swanson family. Each member of the family has 4 towels. How many towels are there altogether?

2. Reynaldo bought a bagel and orange juice. Luis bought a muffin and Cristina bought milk. How much did each person spend?

Item	Cost
Bagel	\$1.25
Muffin	\$0.75
Orange Juice	\$1.00
Milk	\$1.25

4. Megan swims 20 laps each day for a week. Natalie swims twice as much as Megan. At the end of 7 days, how many laps have Natalie and Megan swum in all?

6. What two numbers are missing in the pattern below?

6, 12, , 24, 30, 36, 42, 

Customary Units of Weight

Weight tells how heavy an object is. You can measure weight in ounces and pounds.



1 ounce (oz)

Use ounces to weigh light objects.



5 oz



1 pound (lb)

Use pounds to weigh heavier objects.



10 lb

Choose the most appropriate unit to measure the weight of each object. Choose from *ounce*, or *pound*.

1. bowling ball

2. tissue

3. pen

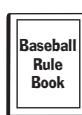
Circle the letter of the better estimate.

4.



A. 1 oz
B. 1 lb

5.



A. 6 oz
B. 6 lb

6.



A. 1 lb
B. 10 lb

7.



A. 3 oz
B. 30 oz

8.



A. 25 oz
B. 25 lb

9.



A. 4 oz
B. 4 lb

Skills Practice*Customary Units of Weight***Circle the letter of the better estimate.****1. apples**

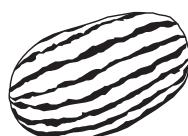
A. 1 oz
B. 1 lb

2. basketball

A. 20 oz
B. 20 lb

3. boy

A. 60 oz
B. 60 lb

4. watermelon

A. 5 oz
B. 5 lb

5. baseball

A. 5 oz
B. 5 lb

6. hat

A. 3 oz
B. 3 lb

7. sneakers

A. 1 oz
B. 1 lb

8. health bar

A. 1 oz
B. 1 lb

Order the objects from lightest to heaviest.**9. baseball, soccer ball, golf ball**

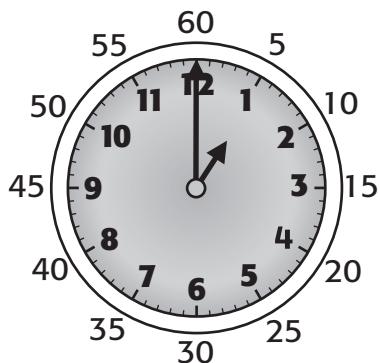
10. basketball, basketball shirt, basketball player

Compare. Write $>$, $<$ or $=$.**11.** 18 oz 1 lb**12.** 1 lb 16 oz**13.** 12 oz 1 lb

Convert Units of Time

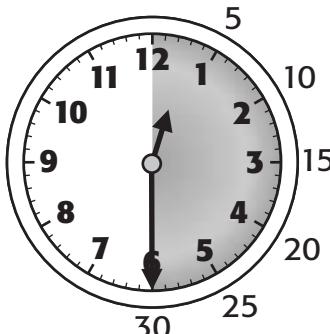
There are 60 minutes in **1 hour**.

$$1 \text{ hour} = 60 \text{ minutes}$$



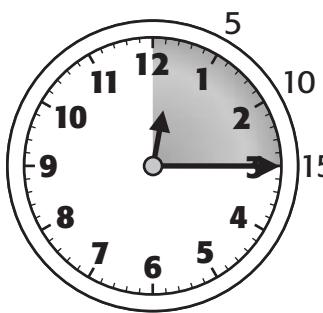
There are 30 minutes in a **half hour**.

$$\frac{1}{2} \text{ hour} = 30 \text{ minutes}$$



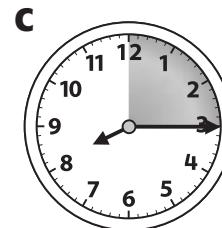
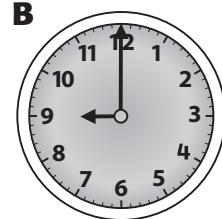
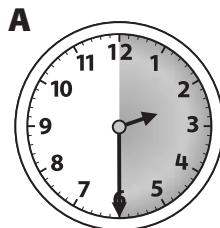
There are 15 minutes in a **quarter hour**.

$$\frac{1}{4} \text{ hour} = 15 \text{ minutes}$$



Write the correct letter of the clockface.

1. half hour _____



2. hour _____

3. quarter hour _____

Write the letter of the matching time.

4. 15 minutes _____ **A** 1 hour

B half hour

C quarter hour

5. 60 minutes _____ **A** 1 hour

B half hour

C quarter hour

6. 30 minutes _____ **A** 1 hour

B $\frac{1}{2}$ hour

C $\frac{1}{4}$ hour

7. 2 hours _____ **A** 30 minutes

B 60 minutes

C 120 minutes

8. 180 minutes _____ **A** 1 hour

B $1\frac{1}{2}$ hours

C 3 hours

9. 90 minutes _____ **A** $1\frac{1}{2}$ hours

B 1 hours

C $1\frac{3}{4}$ hours

Skills Practice**3MG1.4***Convert Units of Time***Convert.**

1. 60 minutes = _____ hour

2. $\frac{1}{2}$ hour = _____ minutes

3. 3 hours = _____ minutes

4. 120 minutes = _____ hours

5. $\frac{1}{4}$ hour = _____ minutes

6. 2 half hours = _____ minutes

7. 30 minutes = _____ hour

8. 15 minutes = _____ hour

9. 3 half hours = _____ minutes

10. 3 quarter hours = _____ minutes

11. $1\frac{1}{2}$ hours = _____ minutes

12. 1 hour = _____ quarter hours

13. 2 hours = _____ minutes

14. 4 half hours = _____ hours

15. $\frac{3}{4}$ hour = _____ minutes

16. 30 minutes = _____ quarter hours

17. 2 hours = _____ minutes

18. 150 minutes = _____ half hours

19. 4 half hours = _____ hours

20. 300 minutes = _____ hours

Solve.21. Jan exercises for $\frac{1}{2}$ hour. How many minutes is that?

_____ minutes

22. The bus ride is 15 minutes long. How many hours is that?

_____ hour

23. The movie is 2 hours long. How many minutes is that?

_____ minutes

24. Eric trains for 60 minutes. How many quarter hours is that?

_____ quarter hours

25. The halftime at the football game was $\frac{1}{4}$ hour long. How many minutes is that?

_____ minutes

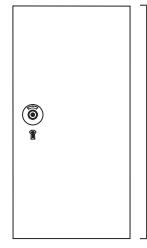
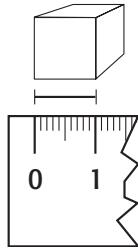
26. Martha spends 240 minutes visiting her grandmother. How many hours is that?

_____ hours

Metric Units of Length

In the metric system, you use centimeters (cm) to measure length.

This is 1 centimeter (cm). 1 meter (m) = 100 cm



A ones cube is
1 cm wide.

A door is about
1 m wide and 2 m high.

Choose the most appropriate unit to measure each length.

Write millimeter, centimeter, meter, or kilometer.

1. a football _____
 3. a blade of grass _____
 5. the length of a
running shoe _____

2. a baseball field _____
 4. the height of a goalpost _____
 6. the distance you can throw
a ball _____

Circle the best estimate.

7. a football player's height

A. 2 cm

B. 2 mm

C. 2 m

8. the length of an eyelash

F. 9 cm

G. 9 mm

H. 9 m

9. the height of a tree

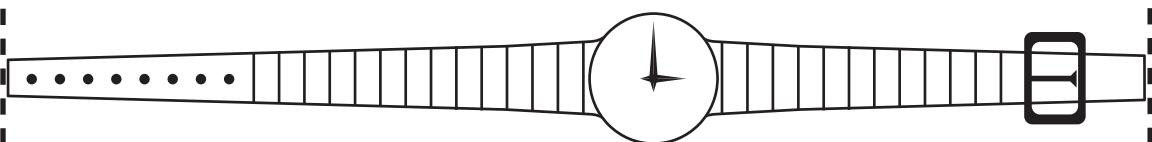
A. 30 cm

B. 30 mm

C. 30 m

Skills Practice*Metric Units of Length***Estimate. Then measure to the nearest centimeter.**

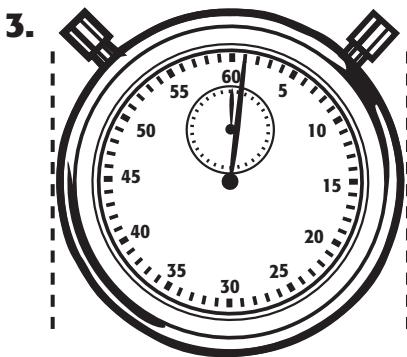
1.



2.



3.

**Circle the best estimate.**

4. the height of a third grader

A. 120 cm

B. 120 mm

C. 120 m

5. the length of a race

F. 100 cm

G. 100 mm

H. 100 m

6. the length of a sneaker

A. 15 cm

B. 15 mm

C. 15 m

*Problem-Solving Strategy***Guess and Check**

If you want to solve a problem, it is important to have a plan. You can use the *guess and check* strategy to solve problems.

Alicia is making bookmarks for the school fair. She needs 10 centimeters of ribbon for each bookmark. There is a meter of ribbon on each spool. How many bookmarks can she make out of one spool of ribbon? (*Hint:* Remember there are 100 centimeters in a meter.)

Understand	<p>What facts do you know?</p> <ul style="list-style-type: none"> • Each bookmark uses 10 centimeters of ribbon. • There is a meter of ribbon on each spool. <p>What do you need to find?</p> <ul style="list-style-type: none"> • How many bookmarks can be made from a spool of ribbon?
Plan	You can use the <i>guess and check</i> strategy. Guess how many bookmarks you can make and check the answer with division.
Solve	<p>Each bookmark is 10 centimeters. Each spool holds 1 meter of ribbon. Since $1 \text{ meter} = 100 \text{ centimeters}$, we can guess that we can make 10 bookmarks. Check: $100 \div 10 = 10$</p> <p>So, Alicia can make 10 bookmarks.</p>
Check	<p>Look back at the problem. One way to check the answer is work it backward. Check your division with multiplication.</p> $10 \times 10 = 100$ <p>So, the answer is correct.</p>

*Problem-Solving Strategy (continued)***Solve. Use the *guess and check* strategy.**

1. Ben is swimming in a 50-meter race on Saturday. He needs to measure the length of the swim, but he only has lengths of string 10 centimeters long. How many lengths of string will he need to equal 50 meters?

2. Irene's crayons are each about 10 cm long. How many crayon lengths will it take to line them up end to end about 3 meters?

3. Mario is growing fresh carrots. Each week he measures his plants. If his plants grow 5 mm each week, how long will it take for his plants to reach 3 cm?

4. Marta has a stack of books 1 meter high. If Marta sorts her books into 10 equal stacks, how high will each stack be in cm?

*Problem-Solving Strategy***Solve. Use the *guess and check* strategy.**

1. Carmen needs 100 millimeters of yarn to make a bookmark. She has 1 meter of yarn. How many bookmarks can she make?

2. Hugo planted a garden of flowers. He planted 8 yellow flowers and twice as many purple flowers. He also planted some red flowers. Hugo has a total of 30 flowers. How many red flowers did he plant?

3. Each week, Pascul mows the front lawn twice and back lawn once. He walks a total of 824 meters while mowing in a week. He walks 391 meters each time he mows the front lawn. How many meters does he walk when he mows the back lawn?

4. Rogelio likes to run around the block. It takes him about 7 minutes. If Rogelio runs around the block 4 times a day, 2 days a week, how much time does he spend running around the block in a week?

5. Paloma has blocks that are 4 centimeters tall. If she stacks her blocks on top of each other, the stack is 32 centimeters tall. How many blocks does Paloma have?

6. Catalina is thinking of two numbers. Their difference is 3 and their sum is 33. What are the numbers?

9-3**Reteach****3MG1.1***Metric Units of Capacity*

The metric system uses milliliters and liters to measure capacity.

This dropper holds about 1 mL.



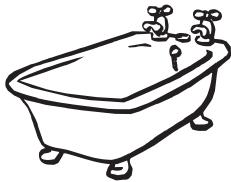
A drinking glass holds about 240 mL.



A bottle of water holds 1,000 mL, or 1 L.



Which unit would you use to measure the capacity of each?
Write *mL* for milliliters and *L* for liters.

1.

2.

3.

Circle the best estimate to complete each sentence.

4. A juice box holds about _____ mL.

A. 8**B.** 18**C.** 180

5. A teaspoon holds _____ mL.

F. 10**G.** 100**H.** 1,000

6. A large pot holds about _____ L.

A. 1**B.** 6**C.** 60

Skills Practice*Metric Units of Capacity***Circle the better estimate.****1.**

A. 1 mL
B. 1 L

2.

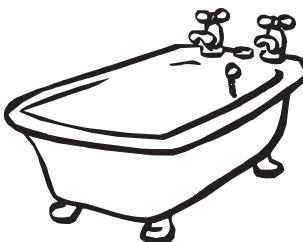
F. 1 mL
G. 1 L

3.

A. 360 mL
B. 360 L

4.

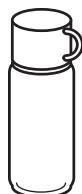
F. 150 mL
G. 150 L

5.

A. 50 mL
B. 50 L

6.

F. 1 mL
G. 1 L

Choose the most appropriate unit to measure each capacity.**Write *milliliter* or *liter*.****7.****8.****9.**

*Problem-Solving Investigation***Choose a Strategy**

Coach Betty wants 11 liters of water in a cooler. She has a 5-liter bottle and an 8-liter bottle. How can she use them to measure exactly 11 liters?

Step 1 Understand	<p>Be sure you understand the problem. Read carefully</p> <p>What do you know?</p> <ul style="list-style-type: none"> Coach Betty wants _____ liters of water in a cooler. Coach Betty has bottles that hold _____ liters and _____ liters. <p>What do you need to know?</p> <ul style="list-style-type: none"> You need to find how to use the bottles to measure _____
Step 2 Plan <ul style="list-style-type: none"> Draw a picture or diagram Make a graph Look for a pattern Choose an operation Make a table Work backward Guess and check 	<p>Make a plan. Choose a strategy. Use draw a picture to solve the problem. You can use the difference of the amount of water in the bottles to measure exactly 11 liters.</p>

Problem-Solving Investigation (continued)

Step 3 Solve	<p>Carry out your plan.</p> <p>Follow the steps.</p> <ul style="list-style-type: none"> • Fill the 8-L bottle. • Fill the 5-L bottle from the 8-L bottle. • Pour what is left in the 8-L bottle into the cooler. • Refill the 8-L bottle • Pour the water from the 8-L bottle into the cooler. • Add. $8 + 3 = \underline{\hspace{2cm}}$. There are $\underline{\hspace{2cm}}$ liters in the water cooler.
Step 4 Look Back	<p>Is the solution reasonable?</p> <p>Reread the problem.</p> <p>How can you check your answers?</p> <hr/> <hr/>

Use any strategy to solve. Tell what strategy you used.

1. Ed has a 6-oz cup and an 8-oz cup. How can he use the cups to measure 10 ounces of water?

2. Cathy, Ted, and Ella eat lunch. One has a ham sandwich, one has a tuna sandwich, and one has a cheese sandwich. Ted and Cathy do not eat ham. Cathy does not eat fish. What does Ella eat?

Skills Practice*Problem-Solving Investigation***Use any strategy shown below. Tell what strategy you used.**

- Look for a pattern
- Choose an operation
- Make a table

- Work backward
- Guess and check

1. Jack got home from school at 4:30 P.M. Before getting home, he practiced baseball for 30 minutes and played with his friends for 45 minutes. What time did he leave school?

2. Coach Mary has a 5-gallon bottle and a 3-gallon bottle. How can she use the bottles to get exactly 14 gallons of water in a cooler?

3. Dan, Michael, and Jerry play different sports. One plays tennis, another plays baseball, and the third is on the swimming team. Michael and Jerry play sports that use balls. Michael does not play baseball. Who plays baseball?

4. Ellen read 5 pages of a book on the first day, 10 pages the second day, and 15 pages the third day. If the pattern continues, how many pages will she read on the fifth day?

5. A small van has 4 rows of seats. Each row can seat 3 people. How many people in all can 2 vans hold?

6. Leah is 5 feet tall. Her brother Jamie is 50 inches tall. How much taller is Leah than Jamie?

9-5**Reteach****3MG1.1*****Metric Units of Mass***

Mass is the amount of matter in an object. In the metric system, units of mass are the **gram** and the **kilogram**.

$$1,000 \text{ grams (g)} = 1 \text{ kilogram (kg)}$$

Use grams to find the mass of small things.



1 g

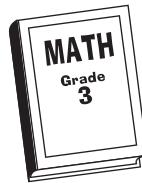


145 g



220 g

Use kilograms to find the mass of larger things.



1 kg



5 kg



2 kg

Choose the most appropriate unit to measure each mass.

Write *gram* or *kilogram*.

1. a third grader _____
 3. a golf ball _____
 5. a whistle _____

2. a juice box _____
 4. a golf club _____
 6. a bag of apples _____

Draw a line to match each object and its mass.

7. a football helmet
 8. a remote control
 9. a car
 10. a computer disk
 11. a bag of groceries

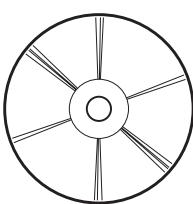
A. 1 kg
 B. 10 kg
 C. 1,200 kg
 D. 22 g
 E. 500 g

Skills Practice*Metric Units of Mass***Circle the better estimate.****2.****3.**

A. 1 g
B. 1 kg

F. 600 g
G. 600 kg

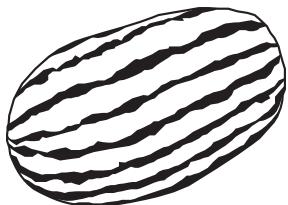
A. 8 g
B. 8 kg

**5.****6.**

F. 2 g
G. 2 kg

A. 22 g
B. 22 kg

F. 20 g
G. 20 kg

Choose the most appropriate unit to measure each mass.**Write *gram* or *kilogram*.****7.****8.****9.**

Metric Unit Conversions**Convert Metric Units**

The metric system is based on tens. So, you can use patterns to change from one unit to another.

To change from meters to centimeters, count by 100s.

m	cm
1	100
2	200
3	300

To change from liters to milliliters, count by 1,000s.

L	mL
1	1,000
2	2,000
3	3,000

To change from kilograms to grams, count by 1,000s.

kg	g
1	1,000
2	2,000
3	3,000

Circle the amount that makes each sentence true.

1. $3 \text{ m} = \underline{\hspace{2cm}}$

A. 3 cm

B. 300 cm

C. $3,000 \text{ cm}$

2. $500 \text{ cm} = \underline{\hspace{2cm}}$

F. 5 m

G. 500 m

H. $5,000 \text{ m}$

3. $6,000 \text{ g} = \underline{\hspace{2cm}}$

A. 6 kg

B. 60 kg

C. 600 kg

4. $4 \text{ L} = \underline{\hspace{2cm}}$

F. 400 mL

G. $4,000 \text{ mL}$

H. $40,000 \text{ mL}$

5. $5,000 \text{ mL} = \underline{\hspace{2cm}}$

A. 5 L

B. 500 L

C. $5,000 \text{ L}$

Convert each unit to a smaller unit or larger unit.

6. $8 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$

7. $4 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

8. $7 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

9. $400 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

10. $9,000 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$

11. $6,000 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$

12. $3 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

13. $500 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

14. $5 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

15. $9 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$

16. $4,000 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$

17. $1,000 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$

Skills Practice*Metric Unit Conversions***Complete each table.**

1.

Centimeters	200		600	800
Meters	2	4		

2.

Milliliters	1,000	2,000	3,000	
Liters	1			4

Convert each unit to a smaller unit or larger unit.

3. $100 \text{ cm} = \underline{\hspace{1.5cm}} \text{ m}$ 4. $2,000 \text{ mL} = \underline{\hspace{1.5cm}} \text{ L}$ 5. $3,000 \text{ g} = \underline{\hspace{1.5cm}} \text{ kg}$

6. $500 \text{ cm} = \underline{\hspace{1.5cm}} \text{ m}$ 7. $6,000 \text{ g} = \underline{\hspace{1.5cm}} \text{ kg}$ 8. $1,000 \text{ mL} = \underline{\hspace{1.5cm}} \text{ L}$

9. $3 \text{ L} = \underline{\hspace{1.5cm}} \text{ mL}$ 10. $6 \text{ m} = \underline{\hspace{1.5cm}} \text{ cm}$ 11. $2 \text{ kg} = \underline{\hspace{1.5cm}} \text{ g}$

12. $\underline{\hspace{1.5cm}} \text{ g} = 5 \text{ kg}$ 13. $\underline{\hspace{1.5cm}} \text{ cm} = 9 \text{ m}$ 14. $\underline{\hspace{1.5cm}} \text{ mL} = 7 \text{ L}$

Solve.

15. A container holds 5 liters of water. How many milliliters of water does the container hold?

16. A table is 2 meters long. How many centimeters long is the table?

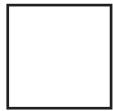
17. A banana has a mass of 125 grams. Use repeated addition to find the mass of two bananas?

18. A spider monkey has a mass of 6 kg. How many grams is this?

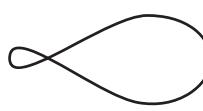
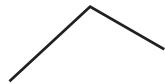
10-1**Reteach****3MG2.1*****Polygons***

A polygon is a closed figure with straight sides.

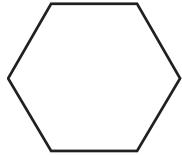
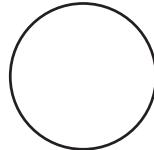
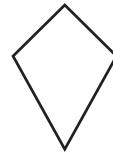
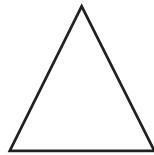
These are polygons.



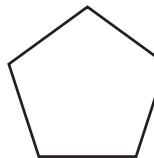
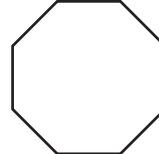
These are **not** polygons.

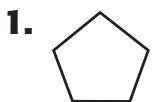


Circle the polygons below.

1.**2.****3.**

Classify each polygon.

4.**5.****6.**

10-1**Skills Practice****3MG2.1*****Polygons*****Classify each polygon.**







5. It has 6 sides.**6. It has 4 sides. All sides may not be equal in length.**

7. It has 3 sides.**8. It has 8 sides.**

9. It has 4 sides.**10. It has 5 sides.**

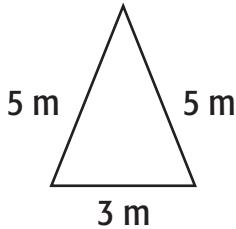
Solve.**11. The library at Ladew Mansion in Maryland has 8 sides. What is the shape of the library?**

12. A kitchen tile has 4 sides of equal length. What is the shape of the tile?

10-2**Reteach****Perimeter****3MG1.3**

The perimeter is the distance around the outside of an object or shape.
To find perimeter, add the lengths of the sides.

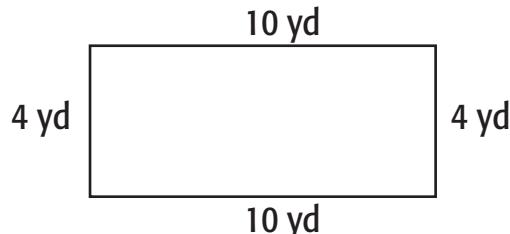
To find the perimeter of this triangle, add the lengths of the 3 sides.



$$5 + 5 + 3 = 13$$

The perimeter is 13 m.

To find the perimeter of this rectangle, add the lengths of the 4 sides.

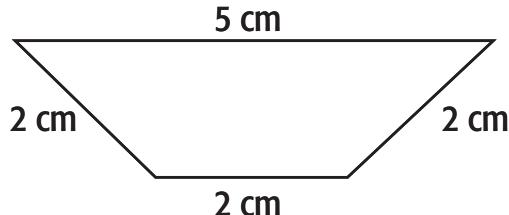


$$10 + 4 + 10 + 4 = 28$$

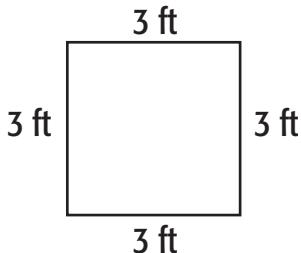
The perimeter is 28 yd.

Complete the sentences.

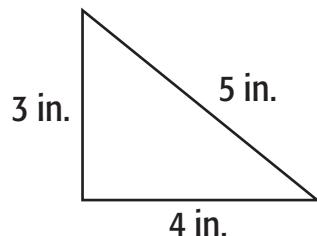
1. The quadrilateral has _____ sides.
2. To find the perimeter of the quadrilateral, I must _____ the lengths of the sides.
3. The lengths of its sides are _____, _____, _____, and _____.
4. Find the perimeter. $2 \text{ cm} + 2 \text{ cm} + 2 \text{ cm} + 5 \text{ cm} =$ _____ cm

**Find the perimeter of each figure.**

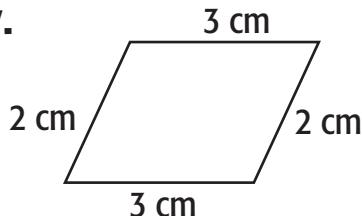
5.

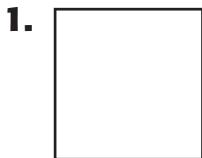


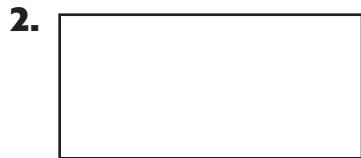
6.

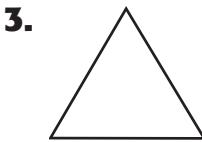


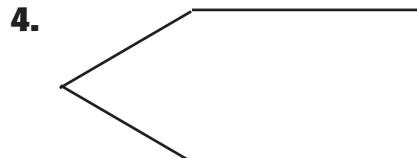
7.



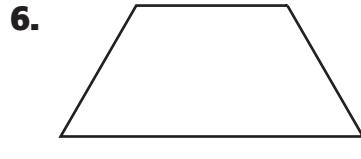
10-2**Skills Practice****3MG1.3****Perimeter****Find the perimeter of each figure. Use a centimeter ruler.**

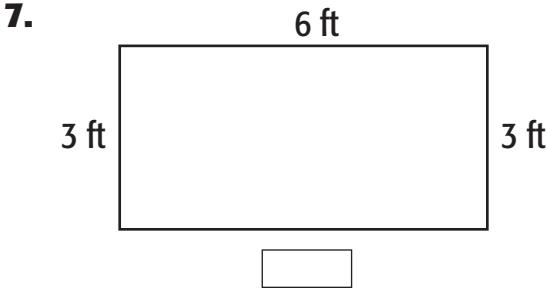




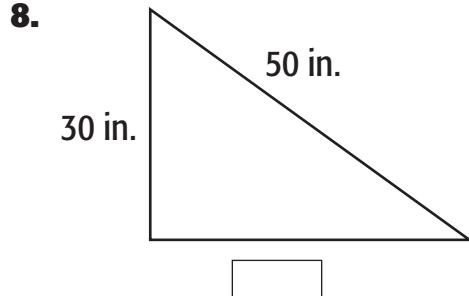






ALGEBRA Find the length of the missing side.

$$P = 3 + 6 + 3 + \boxed{} = 18 \text{ ft}$$



$$P = 30 + \boxed{} + 50 = 120 \text{ in.}$$

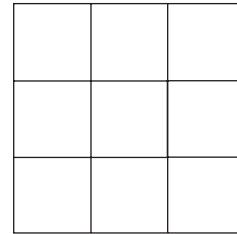
Area

The number of square units needed to cover a plane figure without overlapping is called *area*. You can use grid paper to help you find the area of a figure.



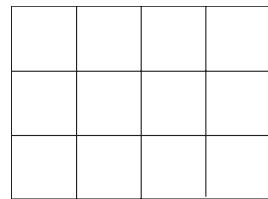
Count the units.

The area of this rectangle is 10 square units.

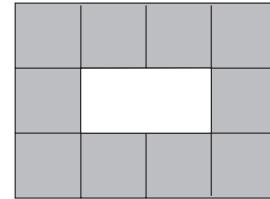


Count the units.

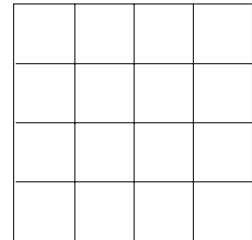
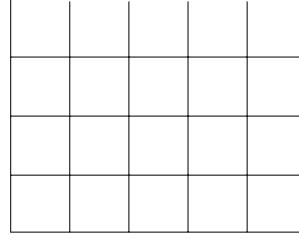
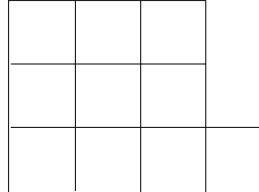
The area of this figure is 8 square units.

Find the area of each figure.**1.**

The rectangle has _____ square units. It has an area of _____ square units.

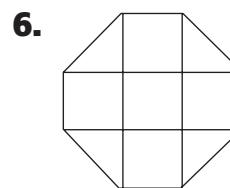
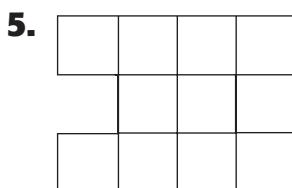
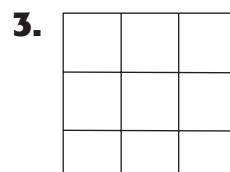
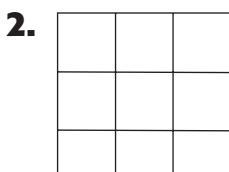
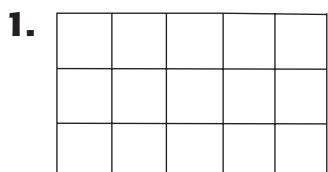
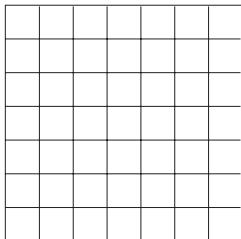
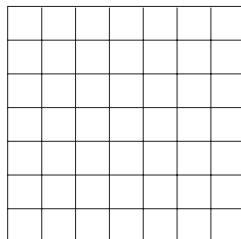
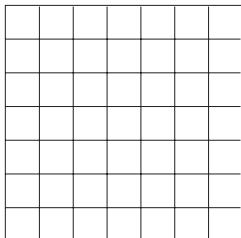
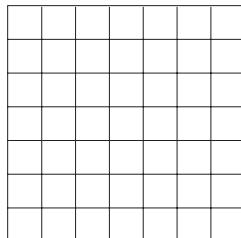
2.

The shaded figure has _____ square units. It has an area of _____ square units.

Find the area of each figure.**3.****4.****5.**

Name _____

Date _____

10-3**Skills Practice****3MG1.2****Area****Find the area of each figure.****Draw a figure having the given area. Use the grid paper below.****7. 12 square units****8. 18 square units****9. 25 square units****10. 30 square units**

*Problem-Solving Strategy***Solve a Simpler Problem**

A family of 2 adults and 3 children each order a sandwich and a drink in the museum cafeteria. Sandwiches cost \$4 and drinks are \$1. How much does lunch cost in all?

Step 1 Understand	<p>Be sure you understand the problem. Read carefully.</p> <p>What do you know?</p> <ul style="list-style-type: none"> • There are _____ people in the family. • They buy _____ sandwiches for _____ each and _____ drinks for _____ each. <p>What do you need to know?</p> <ul style="list-style-type: none"> • You need to find how much
Step 2 Plan <ul style="list-style-type: none"> • Solve a Simpler Problem 	<p>Make a plan. Choose a strategy.</p> <p>Break the problem down into smaller parts. First, find the total number of people. Next, find the total cost of the sandwiches. Then, find the total cost of the drinks. Finally, add the total cost of the sandwiches to the total cost of the drinks.</p>
Step 3 Solve	<p>Carry out your plan. Solve this simpler problem.</p> <p>Total number of people</p> <p>2 adults + 3 children = _____ total number of people</p>

Problem-Solving Strategy (continued)

	<p>Total cost of sandwiches:</p> <p>$5 \text{ people} \times \\$4 \text{ per sandwich} = \underline{\hspace{2cm}} \text{ total cost of sandwiches}$</p> <p>Total cost of drinks:</p> <p>$5 \text{ people} \times \\$1 \text{ per drink} = \underline{\hspace{2cm}} \text{ total cost of drinks}$</p> <p>$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ total cost of sandwiches} + \text{total cost of drinks} = \text{total cost}$</p> <p>So, the lunch cost $\underline{\hspace{2cm}}$ in all.</p>
Step 4 Check	<p>Is the solution reasonable? Reread the problem.</p> <p>Does your answer make sense? Yes No Did you answer the question? Yes No</p> <p>What other strategies could you use to solve the problem? _____</p>

Solve. Use the *solve a simpler problem* strategy.

1. The Wilsons buy 2 adult's tickets for \$5 each and 3 children's tickets for \$2 each. How much money do they spend in all?

2. Virginia buys 3 model airplanes for \$6 each, 2 tubes of paint for \$3 each, and 2 tubes of glue for \$2 each. How much money does she spend in all?

Skills Practice*Problem-Solving Strategy***3MR1.2, 3MG1.3****Solve. Use the *solve a simpler problem* strategy.**

<p>1. Tickets to the Science Center cost \$6 for adults and \$3 for children. How much does a family of 2 adults and 4 children pay for tickets?</p> <hr/>	<p>2. The Yuen family stops in the gift shop. Science Center pens cost \$3. Science Center buttons cost \$1. How much does it cost to buy 2 pens and 3 buttons?</p> <hr/>
<p>3. Workers at the Science Center rope off a rectangular space. The space has 2 sides of 5 meters and 2 sides of 8 meters. How much rope do they need?</p> <hr/>	<p>4. Lana's home is 1 mile away from the bus stop. The ride from the bus stop to the Science Center is 6 miles. Lana walks to the bus stop and takes the bus to the Science Center. She returns home the same way. How many miles does she travel in all?</p> <hr/>
<p>5. Nell, Barry, Chet, and Jill are in line for a movie on Alexander Graham Bell. The first person in line is a boy. Barry is ahead of Nell, but not ahead of Jill. List the names in order from first to last in line.</p> <hr/>	<p>6. Write a problem that you could use the <i>solve a simpler problem</i> strategy to solve. Share it with others.</p> <hr/> <hr/> <hr/>

Triangles and Angles

Triangles can be classified by the length of their sides or the size of their angles.



In an **equilateral triangle**,
3 sides are the same length
and the angles are the same.



In an **isosceles triangle**,
2 sides are the same length.



In a **scalene triangle**, no sides are
the same length.

Identify each triangle. Write *equilateral*, *isosceles*, or *scalene*.

1.

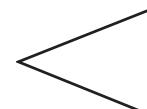
None of the sides of the triangle
are the same length. It is a(n)
_____ triangle.

3.

All of the angles of this triangle
are equal. It is a(n) _____
triangle.

2.

All of the sides of the triangle are
equal. It is a(n) _____
triangle.

4.

Two of the sides of the triangle are
the same length. It is a(n) _____
triangle.

10-5**Skills Practice****3MG2.2, 3MG2.4***Triangles***Identify each triangle. Write *equilateral*, *isosceles*, or *scalene*.**











Identify each triangle. Tell whether each angle shown is a *right angle*, *less than a right angle*, or *greater than a right angle*.









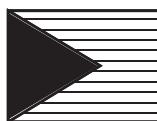


Solve.

13. Classify the triangle in two different ways.



14. Classify the triangle in this flag.



Quadrilaterals

A **quadrilateral** can be classified by its sides and angles.

A **square** has 4 right angles and 4 equal sides.



A **rectangle** has 4 right angles. Its opposite sides are equal in length.



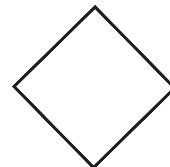
In a **parallelogram**, both pairs of opposite sides are parallel.



Identify each quadrilateral.

1.

It has 2 pairs of parallel sides.
It is a _____.

2.

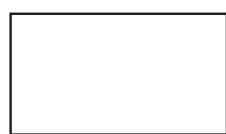
It is a rectangle with sides of equal length. It is a _____.

3.

It has 4 right angles and 4 sides of equal length. It is a _____.

4.

Both pairs of its opposite sides are parallel. It is a _____.

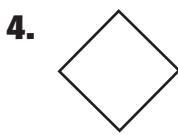
5.

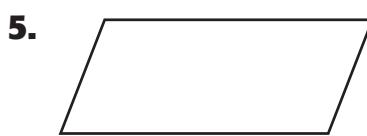
It has 4 right angles, and its opposite sides are equal in length.
It is a _____.

Skills Practice**3MG2.3, 3MG2.4***Quadrilaterals***Identify each quadrilateral.**











7. It has 4 right angles and 4 sides of equal length.

8. Opposite sides have the same length with 2 angles less than right angles.

9. It has 4 sides, opposite sides are parallel, and there are no right angles.

10. It has 4 right angles. Its opposite sides are equal. All sides are not equal in length.

Write the missing numbers in the table.

11.	Number of quadrilaterals	2	4		8
	Number of sides	8		24	

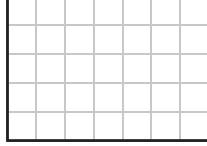
Solve.

12. Which quadrilateral do most DVD cases look like?

13. Which quadrilateral does a computer screen look like?

*Problem-Solving Investigation***Choose the Best Strategy**

Claire made a quilt. The quilt has a length of 7 feet and a width of 5 feet. Each patch is a square with an area of 1 square foot. How many patches are in the quilt?

Understand	<p>You know the length of the quilt is 7 feet and the width of the quilt is 5 feet.</p> <p>You know the area of each patch is 1 square foot.</p> <p>You need to find how many patches are in the quilt.</p>
Plan	You can draw a picture to help solve the problem.
Solve	<p>Draw a picture of the quilt. The width should be 5 units and the length should be 7 units. Each unit equals one square foot.</p>  <p>Each patch has an area of 1 square foot. So, each square represents a patch. Count the squares in your drawing. Claire's quilt has 35 patches.</p>
Check	<p>Look back at the problem. You can find the area of the quilt by repeatedly adding the width seven times.</p> $5 + 5 + 5 + 5 + 5 + 5 + 5 = 35 \text{ square feet}$ <p>So, the answer is correct. There are 35 patches in Claire's quilt.</p>

*Problem-Solving Investigation (Continued)***Use any strategy shown below to solve.**

- Choose an operation
- Guess and check
- Make a table
- Solve a simpler problem

1. Maria's class had a bake sale. They sold cupcakes and cups of milk. For every dozen cupcakes they sold, they poured a half a gallon of milk. If the class sold 24 dozen cupcakes, how many gallons of milk did they pour?

2. Pablo went golfing. On the first 9 holes, he took four strokes each. On the second 9, he only took 3 strokes each. What was Pablo's final score for 18 holes?

3. Juanita collects marbles. For every 4 small marbles Juanita has, she has one large marble. If Juanita has 36 small marbles, how many large marbles does she have?

4. Toby swims laps every day. Shawna swims twice as many laps each day as Toby. If Shawna swims 14 laps a day, how many does Toby swim?

Skills Practice**3MG1.2, 3MR1.1***Problem-Solving Investigation***Use any strategy shown below to solve.**

- Choose an operation
- Make a table
- Guess and check
- Solve a simpler problem

1. Lori went to the store and bought 3 cans of soup, a dozen eggs, a 6 pack of water, a loaf of bread, and 2 cans of tuna fish. The express line is for 10 items or fewer. Can Lori go through the express line?

2. Pam has two pages of math homework, one page of English, and still needs to study for a spelling test for 15 minutes. If she begins her work at 7:30 and spends ten minutes on each page of homework, will she be able to be in bed by 8:30?

3. Marta was designing her new garden. For every 2 pink flowering plants, she wanted to plant 3 purple flowering plants. If Marta planted 18 pink flowering plants, how many purple plants would she need?

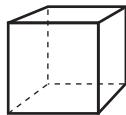
4. Jorge is hanging some new wallpaper. His walls are 10 feet by 8 feet, and he has 4 walls to cover. If he buys 500 square feet of wallpaper, will he have enough to paper the entire room?

5. Susan and Vanesa are mother's helpers. They earn \$3 an hour and work 5 hours a week. How much do Vanesa and Susan make together each week?

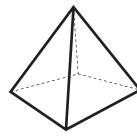
6. Mercedes rides her bike every day. Beatriz rides her bike twice as much as Mercedes. Emilio bikes 5 miles per day. If Mercedes rides her bike 2 miles a day, how many miles does Beatriz bike?

10-8**Reteach****3MG2.5***Solid Figures*

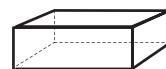
The objects you see around you are solid figures. A solid, or 3-dimensional figure, is a figure that has length, width, and height.



cube



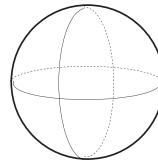
pyramid



rectangular prism



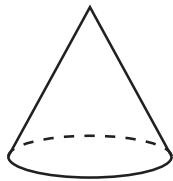
cylinder

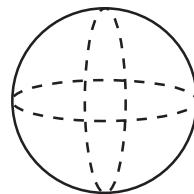


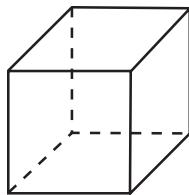
sphere

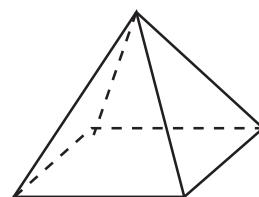


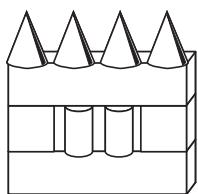
cone

Identify each solid figure.**1.**

2.

3.

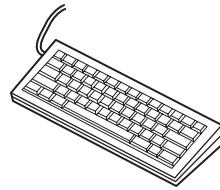
4.

10-8**Skills Practice****3MG2.5***Solid Figures***Identify each solid figure.****1.****2.****3.****4.****5.****6.****7.****8.****9.****10.** Identify the figures that were used to build this house.**11.** Name 3 things in your classroom that are shaped like a rectangular prism.

10-9**Reteach****3MG2.6***Complex Solid Figures*

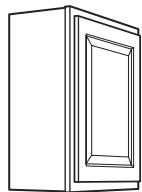
Think about the solid figures you learned about in lesson 8.

When we look around, we can find many solid figures in just one object. We call these **complex solid figures**. Think about a computer keyboard. It contains two solid figures.



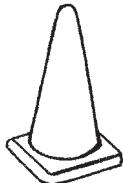
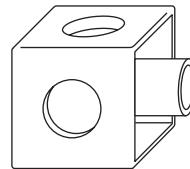
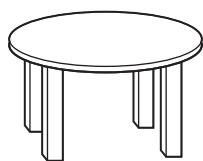
Can you find the rectangular prism in the keyboard? It's the base. Can you find the cubes on the keyboard? They are the keys. Sometimes we may need to use our imagination a bit. Sometimes we need to make the solid figures taller, or sometimes we may need to make the figures shorter and wider. If you look around, you can find lots of complex solids.

Identify the figures that make each complex solid.

1.**2.****3.**

crayon



10-9**Skills Practice****3MG2.6***Complex Solid Figures***Identify the figures that make each complex solid.****1.****2.****3.****4.****5.****6.****7.****8.****9.**

10. Gabrielle was told she needed to construct a sign using two cylinders, two cones, and a rectangular prism. What do you think her sign looked like?

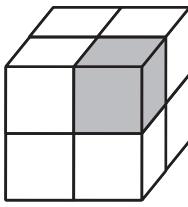
11. Alberto was designing some new playground equipment. He used cones, cylinders, and spheres. He did not use any rectangular prisms or cubes. What do you think his equipment looked like?

*Measurement: Volume*A **cubic unit** is a unit of volume.

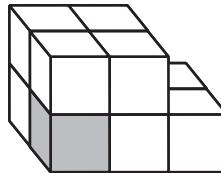
Volume is the number of cubic units a solid figure holds.

You can use cubes to help you find volume. Count the cubes.

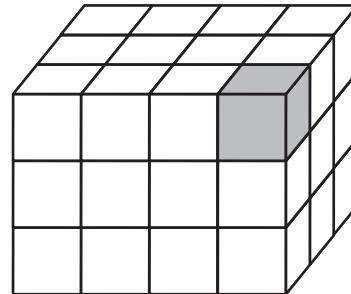
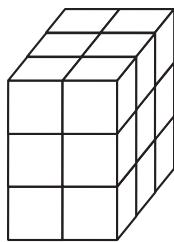
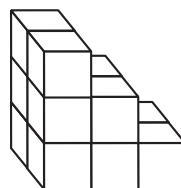
This figure has a volume of 8 cubic units.



This figure has a volume of 10 cubic units.

**Use the figure at the right to answer 1–5.**

1. The top layer has _____ cubic units.
2. The middle layer has _____ cubic units.
3. The bottom layer has _____ cubic units.
4. How many cubes are there in all? _____
5. The volume is _____ cubic units.

**Find the volume of each solid figure.****6.****7.**

Name _____

Date _____

10-10

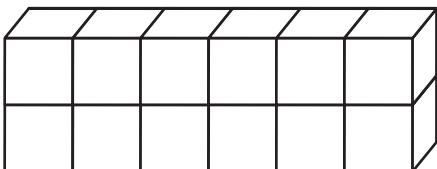
Skills Practice

3MG1.2

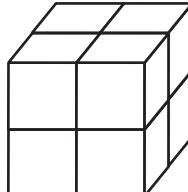
Measurement: Volume

Find the volume of each solid figure.

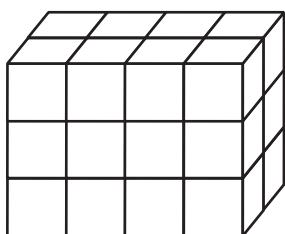
1.



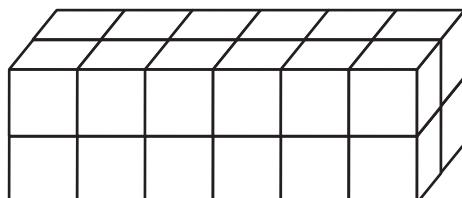
2.



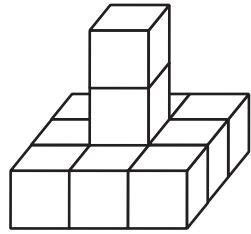
3.



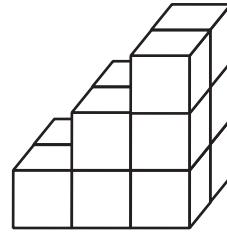
4.



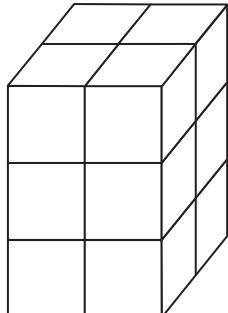
5.



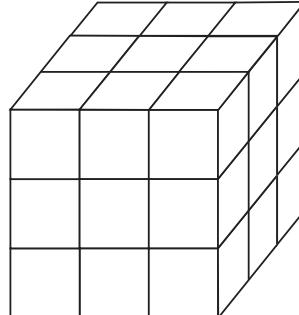
6.



7.



8.



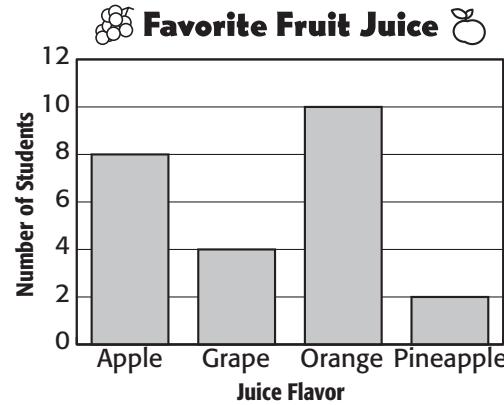
Bar Graphs

Mark takes a survey of some third-grade students to find out which flavor of juice they like best. He shows the results in a chart. Then Mark uses the chart to make a bar graph.

A **bar graph** is a graph that shows data using bars. The **scale** along one side of the bar graph is a set of equally spaced marks to tell how many.

The first bar in the graph tells you that 8 students like apple juice.

Favorite Fruit Juice	
Juice	Number of Students
Apple	8
Grape	4
Orange	10
Pineapple	2



Use the data in the bar graph to answer the questions.

1. How many students like grape juice?

3. How many more students like orange juice than pineapple juice?

5. Which juice flavor did the students like the most? How can you tell?

2. Which juice flavor is the students' least favorite?

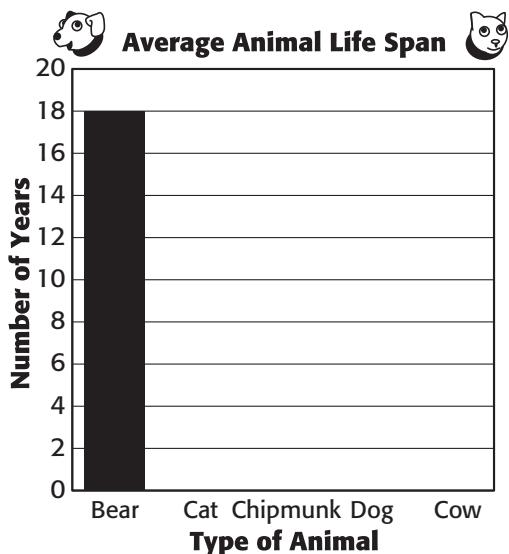
4. Which two juice flavors do the students like the best?

6. How many students were in this survey? How do you know?

Skills Practice**3SDAP1.3, 3MR2.3****Bar Graphs**

Yoshi finds the following data about the life span of some animals. First he records the data in a chart. Then he starts to make a bar graph.

Average Animal Life Span	
Type of Animal	Average Life Span (Years)
Black bear	18
Domestic cat	12
Chipmunk	6
Domestic dog	12
Cow	15



Use the data in the chart to finish the bar graph. Then answer each exercise.

1. Why does the graph show every second number instead of all the numbers from 0 through 20 in the scale?

2. Which animal has the longest average life span? _____

3. Which animals have the same average life span? _____

4. How many more years is a cow more likely to live than a cat? _____

5. Which animal has the shortest life span? _____

Line Plots

Like a vertical bar graph, a **line plot** shows information vertically. The base of the line plot is just that, a line, where we can place numbers. Unlike a bar graph, a line plot doesn't have a vertical scale. Above each number or word at the base, we plot an X to represent how often a number is represented.

Let's make a line plot together. We'll plot the number of chores Paula did last week. On Sunday, Thursday, and Saturday, she did 4 chores a day. On Monday through Wednesday, she did 2 chores a day. Friday, she did none. Use the space below to make your line plot.

1. Make a line along the bottom of the page, but leave room for numbers below the line.
2. Write the numbers 0–5 in order under the line. Space the numbers as evenly as you can.
3. For each day Paula completed the number of chores shown on the line plot, put one X above that number.
4. Take a look at your line plot. You may not have an X above each number. Should you?

Line Plots**Display each set of data in a line plot.**

1. Armando was curious to know how much his classmates read at home each week, so he conducted a survey of the number of books each classmate read in a week.

Jose – 3	Dani – 6	Juan – 2	Carla – 8
Ana – 7	Fina – 6	Luisa – 3	Rey – 9
Carmen – 4	Angel – 4	Emilio – 2	Hugo – 2

2. Colin had a good tomato crop this year. He kept track of how many tomatoes he picked each day for a week. Create a line plot to show how many days 5, 6, 7, 8, 9, or 10 tomatoes were picked.

Tomatoes Picked	
Day	Tomatoes
Monday	5
Tuesday	7
Wednesday	10
Thursday	8
Friday	7
Saturday	5
Sunday	7

3. Mario and Sonia went on a long drive with their parents last weekend and kept track of all the different out-of-state license plates they spotted. Create a line plot to show the number of times that 5, 6, 7, and 8 license plates of a state were spotted.

Out-of-State Plates	
State	Number Spotted
Oregon	5
Arizona	8
Nevada	6
Washington	5
Maryland	5

Problem-Solving Strategy

You have a choice of a main dish and a drink. How many different combinations are possible?



Step 1
Understand

Be sure you understand the problem. Read carefully.

What do you know?

- Main dishes are _____
- Drinks are _____

What do you need to find?

- You need to find how many _____

Step 2
Plan
• Make a List

Make a plan.
Choose a strategy.

Making a list can help you solve the problem.

Problem-Solving Strategy (continued)

Step 3 Solve	<p>Carry out your plan. List the possible choices.</p> <ol style="list-style-type: none"> 1. eggs, _____ 2. pancakes, _____ 3. waffles, _____ 4. _____, juice 5. _____, juice 6. _____, juice <p>There are _____ different combinations.</p>
Step 4 Check	<p>Is the solution reasonable? Reread the problem.</p> <p>How can you check to make sure your answer is correct?</p> <p>_____</p>

Practice**Solve. Use the *make a list* strategy.**

1. Karen packs jeans in blue, black, and white. She packs shirts in gray, green, and blue. How many different outfits can Karen wear?

2. The ski lodge offers packages for 3 days or 7 days. For each package, you can choose a deluxe room, a standard room, or a budget room. How many different packages are there?

Solve. Use the *make a list* strategy.

1. Diane is buying a bag. She can choose a large, medium, or small bag. The bag comes in leather or canvas. The bag comes with or without a strap. How many different bag choices are there?

2. Sandy will have 1 muffin and 1 juice. She can have a blueberry, corn, or bran muffin. She can have apple, orange, or grape juice. How many different choices are there?

3. Mr. Bevin is flying to Tokyo. The airline offers flights at 8:00 A.M. and 6:00 P.M. On each flight, there are first class, business class, and coach tickets. How many different choices are there for Mr. Bevin?

4. Dan can buy a vest in blue, black, green, or white. He can choose a V-neck or a crew neck. He can also choose a vest with or without a pocket. How many different kinds of vests are there?

5. Manuel has turkey, bologna, and ham to make sandwiches on whole wheat or rye bread. How many different kinds of sandwiches can Manuel make using any number of meats and one type of bread?

6. Joe wants to make a picture. He can use red, blue, green, or yellow paint. He can make a large or a small picture. How many different choices does Joe have using 1 color and 1 size?

7. Write a problem that can be solved with the *make a list* strategy. Share with others.

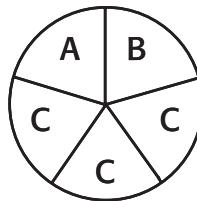
Identify Probability

Probability is the chance that an event will happen.

The spinner has 5 sections.

The spinner shows the letters A, B, and C.

If you spin the spinner:



- It is **certain** that you will land on an A, B, or C. These are the letters showing.
- It is **impossible** that you will land on the letter D. There is no letter D on the spinner.
- It is **likely** that you will land on the letter C. Most of the letters on the spinner are Cs (3 of the 5).
- It is **unlikely** that you will land on the letter A or B. Only 1 of the 5 letters is an A. Only 1 of the 5 letters is a B.

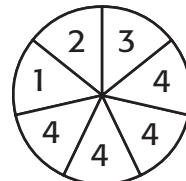
Describe the probability of landing on each number.

Write *certain*, *likely*, *unlikely*, or *impossible*.

1. Land on a 4.

Think: Four of the 7 numbers are 4s.

The probability of landing on a 4 is _____.



2. Land on a 7.

Think: None of the numbers is a 7.

The probability of landing on a 7 is _____.

3. Land on a 3.

Think: Only 1 of the 7 numbers is a 3.

The probability of landing on a 3 is _____.

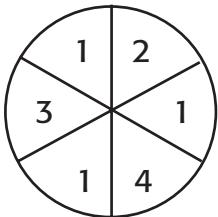
4. Land on a number.

Think: Every section of the spinner shows a number.

The probability of landing on a number is _____.

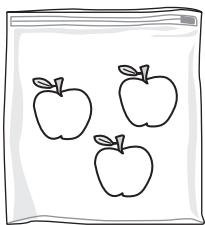
Identify Probability

Describe the probability. Write *certain*, *likely*, *unlikely*, or *impossible*.



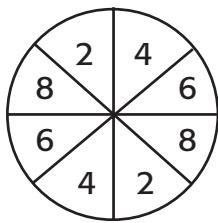
1. Land on a 4. **2.** Land on a 1. **3.** Land on a 5.

_____ _____ _____



4. Pick an apple. **5.** Pick a banana. **6.** Pick a cherry.

_____ _____ _____

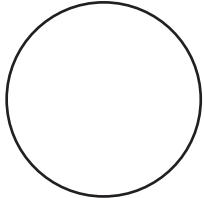


7. Pick an odd number. **8.** Pick a 2. **9.** Pick an even number.

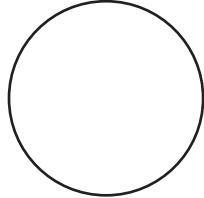
_____ _____ _____

Draw a spinner to represent each statement.

10. Likely but not certain to land on a 5



11. Unlikely but not impossible to land on red



*Problem-Solving Investigation***Choose the Best Strategy**

Beatriz joined a new basketball team. The first game they played, they scored 15 points. The next game they scored 20, and the following game they scored 25. If this pattern continues, how many points will they have scored at the end of 10 games?



Understand	You know the scores of the first three games. You need to find the total points scored after 10 games.																						
Plan	Use the <i>make a table</i> strategy. Make a table showing 10 games and scores. Find scores by adding 5 to each previous score.																						
Solve	<p>Carry out your plan.</p> <table border="1"> <thead> <tr> <th>Game</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th></tr> </thead> <tbody> <tr> <td>Score</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td><td>55</td><td>60</td></tr> </tbody> </table> <p>To find the total, add the scores from each game.</p> $15 + 20 =$ $35 + 25 =$ $60 + 30 =$ $90 + 35 =$ $125 + 40 =$ $165 + 45 =$ $210 + 50 =$ $260 + 55 =$ $315 + 60 =$ <p>So, the total number of points scored by this new team is 375 points.</p>	Game	1	2	3	4	5	6	7	8	9	10	Score	15	20	25	30	35	40	45	50	55	60
Game	1	2	3	4	5	6	7	8	9	10													
Score	15	20	25	30	35	40	45	50	55	60													
Check	Look back at the problem. Check your addition with subtraction. Ask yourself if the answer seems reasonable.																						

*Problem-Solving Investigation (continued)***Use any strategy shown below to solve.**

- Use the four-step plan
- Make a table
- Work backward
- Guess and check
- Work a simpler problem
- Make a list

Ana is working hard to improve her swimming. Each day she swims 12 meters farther than she did the day before. Ana swam 60 meters on Monday. How many meters will she be swimming on Saturday?

Understand	What do you know? Each day Anna swims _____ She swam _____ What do you need to find? _____												
Plan	Use the _____												
Solve	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Monday</td> <td style="width: 70%;">60</td> </tr> <tr> <td>Tuesday</td> <td>$60 + 12 =$ _____</td> </tr> <tr> <td>Wednesday</td> <td>$\underline{\hspace{2cm}} + 12 =$ _____</td> </tr> <tr> <td>Thursday</td> <td>$\underline{\hspace{2cm}} + 12 =$ _____</td> </tr> <tr> <td>Friday</td> <td>$\underline{\hspace{2cm}} + 12 =$ _____</td> </tr> <tr> <td>Saturday</td> <td>$\underline{\hspace{2cm}} + 12 =$ _____</td> </tr> </table> <p>Anna can swim _____ by Saturday.</p>	Monday	60	Tuesday	$60 + 12 =$ _____	Wednesday	$\underline{\hspace{2cm}} + 12 =$ _____	Thursday	$\underline{\hspace{2cm}} + 12 =$ _____	Friday	$\underline{\hspace{2cm}} + 12 =$ _____	Saturday	$\underline{\hspace{2cm}} + 12 =$ _____
Monday	60												
Tuesday	$60 + 12 =$ _____												
Wednesday	$\underline{\hspace{2cm}} + 12 =$ _____												
Thursday	$\underline{\hspace{2cm}} + 12 =$ _____												
Friday	$\underline{\hspace{2cm}} + 12 =$ _____												
Saturday	$\underline{\hspace{2cm}} + 12 =$ _____												
Check	_____												

Problem-Solving Investigation

Use any strategy shown below to solve. Tell what strategy you used.

- Make a table
- Guess and check
- Work backward
- Work a simpler problem
- Make a model
- Make a list

1. The sixth-grade class was having a car wash each weekend during the month of October. The first weekend, they only washed 50 cars. Each weekend they washed 15 more cars. By the end of four weeks, how many cars had they washed?

2. Pittsburgh and Miami played a fantastic season opener. They scored a total of 45 points, but Pittsburgh won by 11. How many points did each team score?

3. Patty is training to hold her breath. When she started, she could hold her breath for about 15 seconds. She worked to hold her breath just two seconds longer each day. After five days, how long could Patty hold her breath?

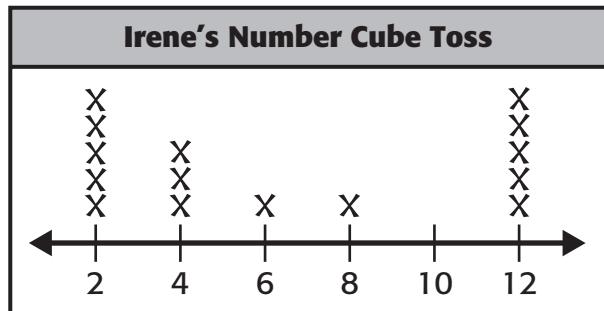
4. There were 15 sparrows in the backyard and twice as many wrens. How many birds were in the backyard?

5. Marcos has the same chores each week, but he'd like to add a little variety. Suppose Marcos has to empty the trash, water the plants, fill the bird feeder, and sort the recycling. How many different ways can Marcos complete his chores?

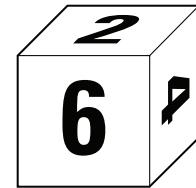
Make Predictions

When you make a prediction, pretend you have a blindfold on and take a guess at the outcome. Look carefully at the information that's been recorded and try to see a pattern.

Let's look at the example below.



Look at the pattern of Irene's results. If you had to guess at the outcome of her next toss, a good guess would be a 2 or a 12, because those numbers have come up so many times in the pattern.



Try one on your own.

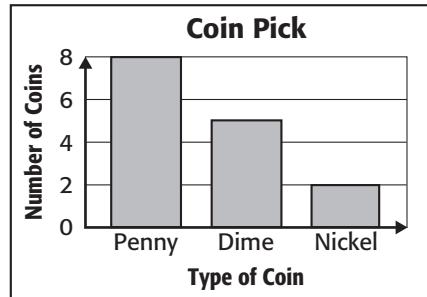
Coins	Totals
Nickels	5
Dimes	3
Pennies	10

Your family is doing a thorough spring cleaning and you get to keep any change you find in the house. Predict what coin you might find next. Support your answer based on the table.

Skills Practice*Make Predictions*

For Exercises 1–2, use the bar graph. It shows the number of times a coin was picked from a bag.

1. What coin are you most likely to pick next? Explain your answer.



2. Do you think there could be more than three kinds of coins in the bag? Explain your answer.

For Exercises 3–5, use the tally chart. It shows the results of picking a marble from a bag 56 times and then replacing it each time.

3. What color is likely to be picked next?

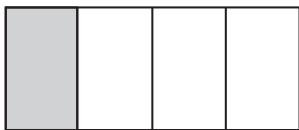
4. What two colors are equally likely to be picked?

5. Is it reasonable to predict that more than twice as many marbles are blue than red? Support your answer.

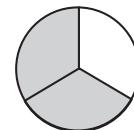
Pick a Marble	
Color	Tally
Green	
Red	
Blue	
Yellow	

12-1**Reteach****3NS3.1****Parts of a Whole**

A fraction can name part of a whole. To write a fraction, each part of the whole must be the same size.



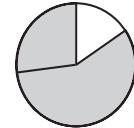
1 part shaded
4 parts in all, $\frac{1}{4}$ is shaded.



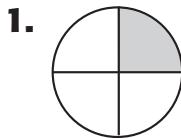
2 parts shaded
3 parts in all, $\frac{2}{3}$ is shaded.



4 unequal parts
You cannot write a fraction.



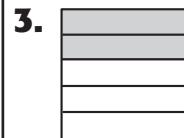
3 unequal parts
You cannot write a fraction.

Write the fraction for the part that is shaded.

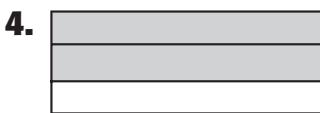
_____ parts shaded
_____ parts in all
fraction _____



_____ parts shaded
_____ parts in all
fraction _____



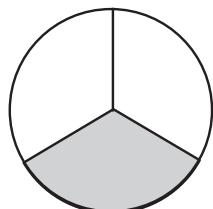
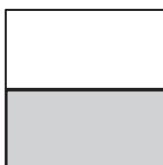
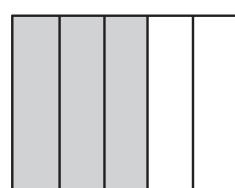
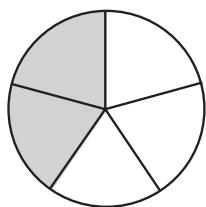
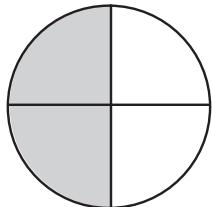
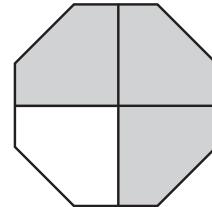
_____ parts shaded
_____ parts in all
fraction _____





Name _____

Date _____

12-1**Skills Practice****3NS3.1***Parts of a Whole***Write a fraction for the part that is shaded.****1.****2.****3.****4.****5.****6.****Draw a picture for each fraction. Shade the fraction.**

7. $\frac{2}{5}$

8. $\frac{1}{2}$

9. $\frac{3}{4}$

10. $\frac{5}{8}$

11. $\frac{2}{3}$

12. $\frac{4}{5}$

*Problem-Solving Investigation: Choose the best strategy.***Choose the best strategy**

Danny and Drew were playing cards. Danny had two cards in his hand that equaled 8 and the difference was 2. Drew held two cards that equaled six and the difference was 4. Do you know which cards they were holding?



Let's start with Danny's cards.

Understand: Danny had two cards. The sum of the cards was 8. The difference was 2. What were the cards?

Plan: Think about the different ways you can make the number 8. Think... $0 + 8 = \underline{\hspace{1cm}}$, $1 + 7 = \underline{\hspace{1cm}}$.

Solve: To arrive at 8, we can add lots of numbers, but if the difference between the two addends is two, Danny must have a 3 and a 5 in his hand.

$$5 + 3 = 8, \text{ and } 5 - 3 = 2.$$

Check: Look back at the problem. $5 + 3 = 8$, and $5 - 3 = 2$. The difference is 2. We are correct.

Using the same strategy, we can see that Drew is holding a 1 and a 5.

Reteach**3MR2.3, 3NS2.1***Problem-Solving Investigation (continued)***Solve.**

Items	Cost
Apples	\$1.25 per lb
Bananas	\$0.75 per lb
Oranges	3 for \$1
Pears	\$1.49 per lb

1. Teresa went to the store to buy some fruit. She spent \$5 and bought apples, bananas, and 3 oranges. She didn't buy any pears. What did Teresa buy?

2. Dana bought some fruit, too. She spent less than \$3 and didn't buy any bananas or oranges. What did she buy?

Boat Rentals	
1–3 hours	\$3 per hour
4–6 hours	\$2 per hour
All day	\$15

3. Use the table above. Carmen and Bernice rented a boat from 9 A.M. to 2 P.M. How much did it cost?

4. Fernando's lunch totaled \$5.65. He gave the waitress a ten dollar bill. How much change did he receive?

5. Would you rather find six dimes, four nickels, and eight pennies in the couch or eight nickels, two quarters, and three pennies?

6. Dana loves to go to the community pool. Admission is \$2 per day. She likes to buy a snack while she's there. She usually buys a bag of chips for 65 cents, and a soda for 95 cents. If Dana goes to the pool five days a week, how much does she spend?

Problem-Solving Investigation

For Exercises 1-3, use the table below to solve.

	Monday	Tuesday	Wednesday	Thursday	Friday
Walk dog	Al	Juan	Carla	Al	Juan
Set table	Juan	Carla	Al	Juan	Carla
Feed fish	Carla	Al	Juan	Carla	Al

1. Who will walk the dog on Tuesday and Friday?

2. Who will feed the fish on Monday and Wednesday?

3. Janice, Pat, and Madison each have a pet. One has fish. One has a cat, and the other has a bird. Pat and Madison have pets that do not live underwater. Madison's pet can fly. Who has the cat?

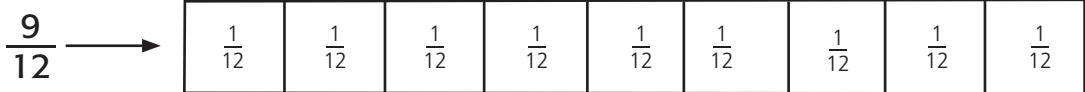
4. It took 55 minutes for the hairdresser to cut Laura's hair. If Laura left the hairdresser's shop at 2:30 P.M., what time did the hairdresser begin?

5. Flowers cost \$12 for 12 or \$0.75 each. How much money can you save by buying 12 flowers individually?

6. Carla's mom drives her to school and back home every day. The trip is 8 miles roundtrip. How many miles do Carla and her mom travel in one week?

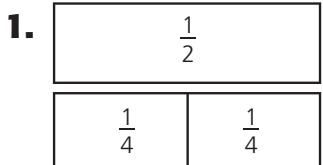
12-3**Reteach****3NS3.1***Find Equivalent Fractions*

Equivalent fractions are different fractions that name the same amount.

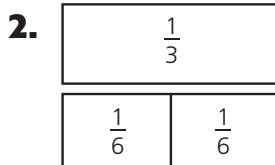


$\frac{3}{4}$, $\frac{6}{8}$, and $\frac{9}{12}$ are equivalent fractions.

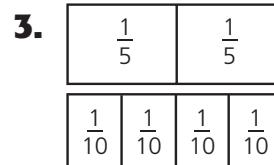
Complete each number sentence to find equivalent fractions.



$$\frac{1}{2} = \frac{\square}{4}$$



$$\frac{1}{3} = \frac{\square}{6}$$



$$\frac{2}{5} = \frac{\square}{10}$$

4. $\frac{1}{4} = \frac{\square}{8}$

5. $\frac{3}{4} = \frac{\square}{8}$

6. $\frac{3}{6} = \frac{\square}{12}$

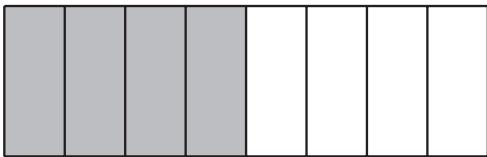
7. $\frac{3}{12} = \frac{\square}{4}$

8. $\frac{1}{2} = \frac{\square}{12}$

9. $\frac{4}{5} = \frac{\square}{10}$

10. $\frac{2}{8} = \frac{\square}{4}$

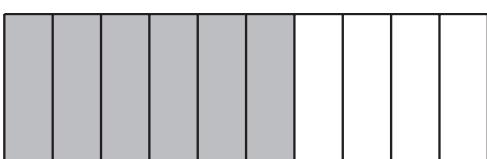
11. $\frac{8}{12} = \frac{\square}{3}$

12-3**Skills Practice****3NS3.1***Find Equivalent Fractions***Complete each number sentence to find equivalent fractions.**

$$\frac{\square}{2} = \frac{\square}{8}$$



$$\frac{\square}{3} = \frac{\square}{9}$$



$$\frac{\square}{5} = \frac{\square}{10}$$

Write another fraction that names each fraction.

4. $\frac{1}{3}$ _____

5. $\frac{3}{8}$ _____

6. $\frac{2}{5}$ _____

7. $\frac{4}{8}$ _____

8. $\frac{1}{6}$ _____

9. $\frac{4}{12}$ _____

10. $\frac{2}{10}$ _____

11. $\frac{3}{5}$ _____

12. $\frac{3}{6}$ _____

13. $\frac{2}{8}$ _____

14. $\frac{4}{5}$ _____

15. $\frac{6}{8}$ _____

*Problem-Solving Strategy***Draw a Picture**

An amusement park has 4 roller coasters. Each roller coaster has 6 cars. Each car has 2 wheels. How many wheels are there in all?

Step 1 Understand	<p>Make sure that you understand the problem.</p> <ul style="list-style-type: none"> • What do you know? <p>An amusement park has _____ roller coasters.</p> <p>Each roller coaster has _____ cars.</p> <p>Each car has _____ wheels.</p> <ul style="list-style-type: none"> • What do you need to find? <hr/>
Step 2 Plan	<p>Figure out a plan.</p> <p>You can draw a picture to show what you know and what you need to find out.</p>
Step 3 Solve	<p>Carry out your plan.</p> <p>Draw 4 roller coasters.</p> <p>Draw 6 cars on each roller coaster.</p> <p>Draw 2 wheels on each car.</p> <p>Count the number of wheels.</p> <p>There are _____ wheels.</p>

*Problem-Solving Strategy (continued)***Draw a Picture**

Step 4 Check	Is the solution reasonable? Yes No How can you use your picture to check your answer? <hr/> <hr/> <hr/>
-----------------	---

Solve. Use the *draw a picture* strategy.

1. There are 3 rows of 5 mini pizzas on a tray. Each mini pizza has 2 pepper slices on it. How many pepper slices are there in all?

2. Reshma baked 3 batches of banana bread. Each batch had 4 loaves. Each loaf had 12 nuts in it. How many nuts did Reshma use in all?

3. The quesadilla was cut into six pieces. Christina ate one third, Luis ate one third, and Mario ate one piece. How many pieces were left?

4. The pencil cup needed to be cleaned out. There were 25 pencils in the cup. 12 were broken, 5 didn't have any erasers, and the rest were able to be sharpened and used. How many pencils were put back in the cup?

Skills Practice*Problem-Solving Strategy***Solve. Use the *draw a picture* strategy.**

1. A minibus has 5 rows of seats. Each row has 2 seats. How many people can travel in 5 minibuses?

2. Alicia made 3 bead bracelets. She put 4 different types of beads on each bracelet. She used 2 beads of each type. How many beads did she use?

3. Eric works on his homework for 2 hours a day. He does his homework 4 days a week. How much time does he spend on his homework in 4 weeks?

4. A muffin pan holds 6 muffins. Leilani uses 2 pans for each batch of muffins. How many muffins does she make in 4 batches?

5. There are eight pieces of fruit in the bowl. There are 2 bananas, 2 apples, and the rest are kiwi. How many kiwi are in the bowl of fruit?

6. There are three students in line. Carrie is behind Ernesto and in front of Roger. In what order are the students standing in line?

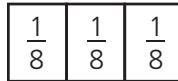
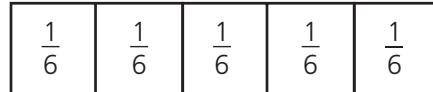
Use any strategy to solve.

7. Darin got home at 8:00 P.M. He was traveling for 1 hour and 15 minutes. At what time did he start traveling?

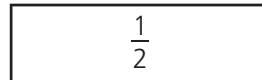
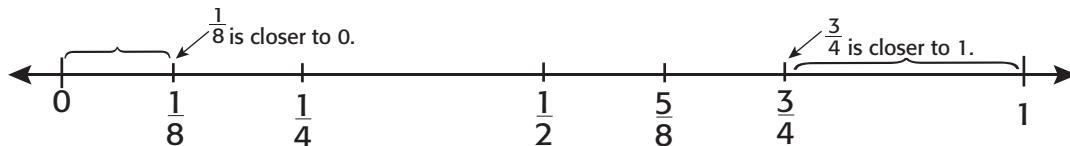
8. Karen spent \$325 for a plane ticket and \$190 on a rental car. How much money did she spend altogether?

12-5**Reteach****3NS3.1***Compare Fractions***You can use fraction strips to compare fractions.** $\frac{1}{8}$ is less than $\frac{3}{8}$ 

$$\frac{1}{8} < \frac{3}{8}$$

 $\frac{5}{6}$ is greater than $\frac{1}{2}$ 

$$\frac{5}{6} > \frac{1}{2}$$

**You can use a number line to tell if a fraction is closer to 0 or 1.****Compare. Write $>$, $<$, or $=$.**

1.

$\frac{1}{6}$	$\frac{1}{6}$
---------------	---------------

$\frac{1}{3}$

$$\frac{2}{6} \bigcirc \frac{1}{3}$$

3. $\frac{4}{8} \bigcirc \frac{7}{8}$

5. $\frac{3}{4} \bigcirc \frac{1}{2}$

2.

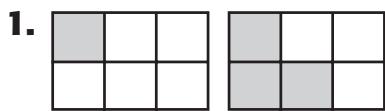
$\frac{1}{2}$

$\frac{1}{5}$

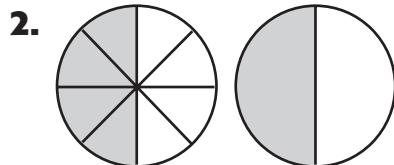
$$\frac{1}{2} \bigcirc \frac{1}{5}$$

4. $\frac{1}{4} \bigcirc \frac{1}{8}$

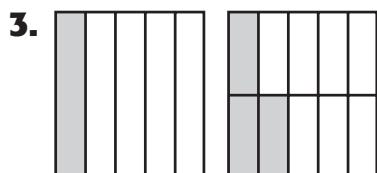
6. $\frac{3}{8} \bigcirc \frac{1}{4}$

12-5**Skills Practice****3NS3.1***Compare Fractions***Compare. Write $>$, $<$, or $=$.**

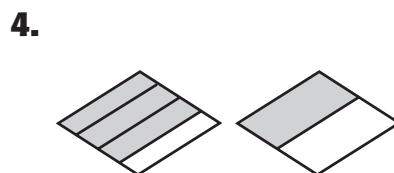
$$\frac{1}{6} \bigcirc \frac{3}{6}$$



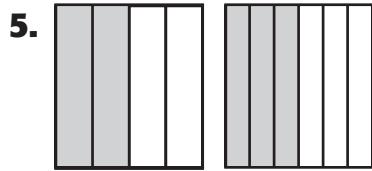
$$\frac{4}{8} \bigcirc \frac{1}{2}$$



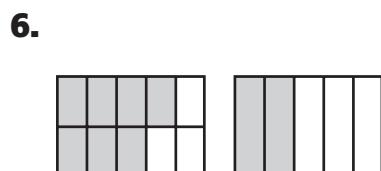
$$\frac{1}{5} \bigcirc \frac{3}{10}$$



$$\frac{3}{4} \bigcirc \frac{1}{2}$$



$$\frac{2}{4} \bigcirc \frac{3}{6}$$



$$\frac{7}{10} \bigcirc \frac{2}{5}$$

7. $\frac{1}{4} \bigcirc \frac{3}{4}$

8. $\frac{2}{6} \bigcirc \frac{1}{6}$

9. $\frac{3}{5} \bigcirc \frac{6}{10}$

10. $\frac{3}{3} \bigcirc \frac{1}{6}$

11. $\frac{3}{8} \bigcirc \frac{1}{2}$

12. $\frac{5}{10} \bigcirc \frac{1}{2}$

13. $\frac{2}{3} \bigcirc \frac{3}{6}$

14. $\frac{3}{10} \bigcirc \frac{1}{5}$

15. $\frac{5}{10} \bigcirc \frac{7}{10}$

16. $\frac{2}{6} \bigcirc \frac{6}{12}$

17. $\frac{2}{8} \bigcirc \frac{1}{4}$

18. $\frac{2}{3} \bigcirc \frac{3}{4}$

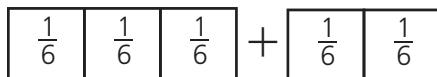
19. $\frac{1}{5} \bigcirc \frac{1}{6}$

20. $\frac{5}{8} \bigcirc \frac{3}{8}$

21. $\frac{4}{5} \bigcirc \frac{1}{5}$

22. $\frac{6}{8} \bigcirc \frac{7}{8}$

Name _____ Date _____

12-6**Reteach****3NS3.2***Add Like Fractions***You can use fraction models to add fractions.****Find $\frac{3}{6} + \frac{2}{6}$.**

$$\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$$

Add.

1. +

$$\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$$

2. +

$$\frac{1}{8} + \frac{4}{8} = \underline{\hspace{2cm}}$$

3. +

$$\frac{1}{6} + \frac{4}{6} = \underline{\hspace{2cm}}$$

4. +

$$\frac{2}{12} + \frac{3}{12} = \underline{\hspace{2cm}}$$

5. +

$$\frac{1}{3} + \frac{1}{3} = \underline{\hspace{2cm}}$$

6. +

$$\frac{3}{10} + \frac{4}{10} = \underline{\hspace{2cm}}$$

Add. Use fraction strips if needed.

7. $\frac{1}{8} + \frac{6}{8} = \underline{\hspace{2cm}}$

8. $\frac{1}{7} + \frac{4}{7} = \underline{\hspace{2cm}}$

9. $\frac{5}{12} + \frac{4}{12} = \underline{\hspace{2cm}}$

10. $\frac{1}{5} + \frac{2}{5} = \underline{\hspace{2cm}}$

11. $\frac{1}{4} + \frac{3}{4} = \underline{\hspace{2cm}}$

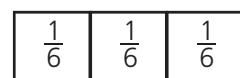
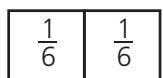
12. $\frac{2}{9} + \frac{3}{9} = \underline{\hspace{2cm}}$

12-6**Skills Practice****3NS3.2***Add Like Fractions***Add.**

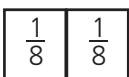
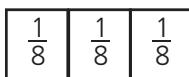
1. $\frac{1}{4} + \frac{2}{4} =$ _____



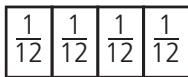
2. $\frac{2}{6} + \frac{3}{6} =$ _____



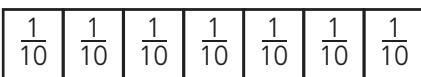
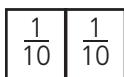
3. $\frac{3}{8} + \frac{2}{8} =$ _____



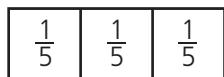
4. $\frac{1}{12} + \frac{4}{12} =$ _____



5. $\frac{2}{10} + \frac{7}{10} =$ _____



6. $\frac{3}{5} + \frac{1}{5} =$ _____

**Add. Use fraction strips if needed.**

7. $\frac{2}{5} + \frac{2}{5} =$ _____

8. $\frac{3}{12} + \frac{4}{12} =$ _____

9. $\frac{1}{3} + \frac{1}{3} =$ _____

10. $\frac{6}{8} + \frac{1}{8} =$ _____

11. $\frac{1}{8} + \frac{2}{8} =$ _____

12. $\frac{1}{5} + \frac{1}{5} =$ _____

13. $\frac{1}{6} + \frac{4}{6} =$ _____

14. $\frac{2}{9} + \frac{2}{9} =$ _____

15. $\frac{2}{10} + \frac{5}{10} =$ _____

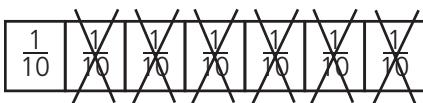
16. $\frac{3}{6} + \frac{2}{6} =$ _____

17. $\frac{2}{10} + \frac{7}{10} =$ _____

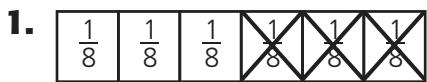
18. $\frac{3}{5} + \frac{1}{5} =$ _____

19. $\frac{1}{4} + \frac{1}{4} =$ _____

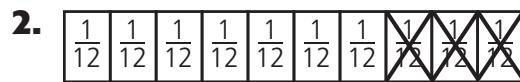
20. $\frac{2}{5} + \frac{3}{5} =$ _____

Subtract Like Fractions**You can use fraction models to subtract fractions.****Find $\frac{7}{10} - \frac{6}{10}$.**

$$\frac{7}{10} - \frac{6}{10} = \frac{1}{10}$$

Subtract.

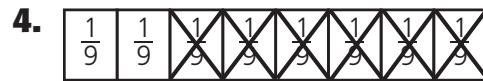
$$\frac{6}{8} - \frac{3}{8} = \underline{\quad}$$



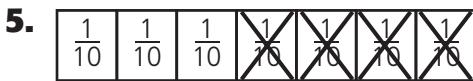
$$\frac{10}{12} - \frac{3}{12} = \underline{\quad}$$



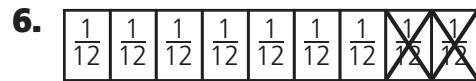
$$\frac{5}{6} - \frac{4}{6} = \underline{\quad}$$



$$\frac{8}{9} - \frac{6}{9} = \underline{\quad}$$



$$\frac{7}{10} - \frac{4}{10} = \underline{\quad}$$



$$\frac{9}{12} - \frac{2}{12} = \underline{\quad}$$

Subtract. Use fraction strips if needed.

7. $\frac{5}{7} - \frac{3}{7} = \underline{\quad}$

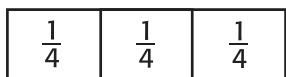
8. $\frac{8}{11} - \frac{4}{11} = \underline{\quad}$

9. $\frac{3}{4} - \frac{1}{4} = \underline{\quad}$

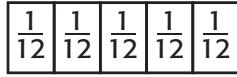
10. $\frac{4}{5} - \frac{4}{5} = \underline{\quad}$

12-7**Skills Practice****3NS3.2***Subtract Like Fractions***Subtract.**

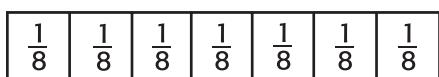
1. $\frac{3}{4} - \frac{2}{4} =$ _____



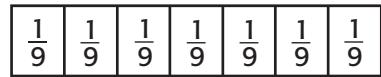
2. $\frac{5}{12} - \frac{4}{12} =$ _____



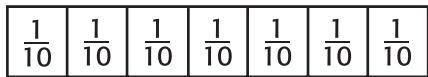
3. $\frac{7}{8} - \frac{2}{8} =$ _____



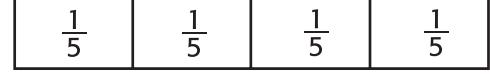
4. $\frac{7}{9} - \frac{3}{9} =$ _____



5. $\frac{7}{10} - \frac{4}{10} =$ _____



6. $\frac{4}{5} - \frac{2}{5} =$ _____

**Subtract. Use fraction strips if needed.**

7. $\frac{5}{7} - \frac{2}{7} =$ _____

8. $\frac{6}{8} - \frac{1}{8} =$ _____

9. $\frac{7}{12} - \frac{2}{12} =$ _____

10. $\frac{9}{10} - \frac{8}{10} =$ _____

11. $\frac{4}{5} - \frac{1}{5} =$ _____

12. $\frac{10}{12} - \frac{3}{12} =$ _____

13. $\frac{6}{8} - \frac{3}{8} =$ _____

14. $\frac{2}{3} - \frac{1}{3} =$ _____

15. $\frac{8}{9} - \frac{3}{9} =$ _____

16. $\frac{6}{8} - \frac{5}{8} =$ _____

17. $\frac{3}{7} - \frac{1}{7} =$ _____

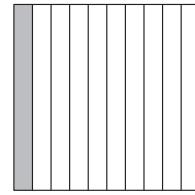
18. $\frac{9}{10} - \frac{2}{10} =$ _____

19. $\frac{3}{12} - \frac{2}{12} =$ _____

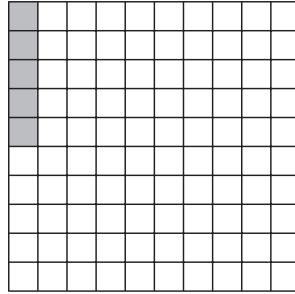
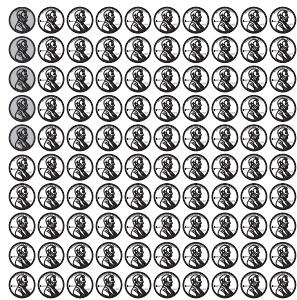
20. $\frac{5}{8} - \frac{2}{8} =$ _____

21. $\frac{8}{10} - \frac{5}{10} =$ _____

22. $\frac{4}{9} - \frac{2}{9} =$ _____

13-1**Reteach****Tenths****3NS3.4****You can use a fraction or a decimal to name parts of a whole.**

$10\text{¢} = \frac{1}{10}$ of a dollar
 Read: one tenth
 Fraction: $\frac{1}{10}$
 Decimal: 0.1 or \$0.10



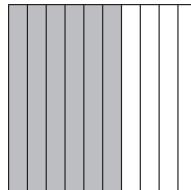
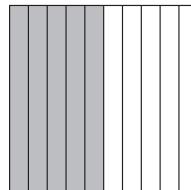
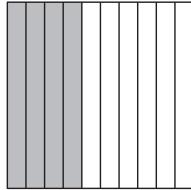
$5\text{¢} = \frac{5}{100}$ of a dollar
 Read: five hundredths
 Fraction: $\frac{5}{100}$
 Decimal: 0.05 or \$0.05

Write a fraction and a decimal for the part that is shaded.

1. _____

2. _____

3. _____

**Write each fraction as a decimal.**

4. $\frac{7}{10}$ _____

5. three tenths _____

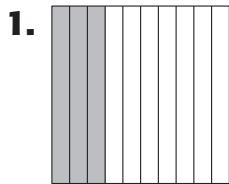
6. $\frac{9}{10}$ _____

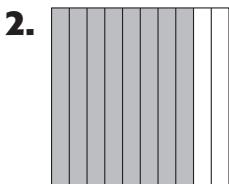
Write each decimal as a fraction.

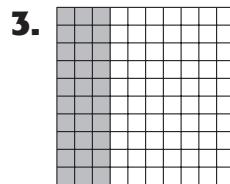
7. 0.5 _____

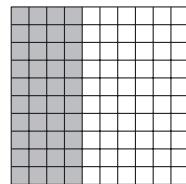
8. 0.4 _____

9. 0.1 _____

Tenths**Write a decimal for each.**







5. $\frac{5}{10} =$ _____

6. $\frac{1}{10} =$ _____

7. $\frac{9}{10} =$ _____

8. $\frac{4}{10} =$ _____

9. $\frac{2}{10} =$ _____

10. $\frac{6}{10} =$ _____

11. $\frac{8}{10} =$ _____

12. $\frac{7}{10} =$ _____

13. six tenths _____

14. eight tenths _____

15. three tenths _____

16. nine tenths _____

17. two tenths _____

18. one tenth _____

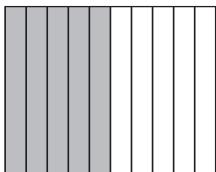
19. five tenths _____

20. seven tenths _____

Solve.

21. There are 10 children at the Sunnyside Preschool. Seven children are younger than 4 years old. Write a fraction and a decimal for the number of children who are younger than 4 years old.

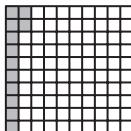
22. There are 10 third grade students near the swings. Six of the students are girls. Write a fraction and a decimal for the number of girls.

This model shows 5 tenths shaded.

5 tenths

$$\frac{5}{10} = 0.5$$

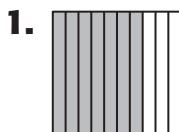
You can write $\frac{5}{10}$ as a decimal, 0.5.
Read: five tenths

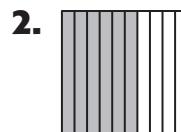
This model shows 12 hundredths shaded.

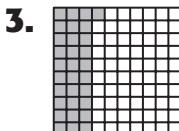
12 hundredths

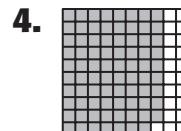
$\frac{12}{100}$ Decimal: 0.12

Read: twelve hundredths

Write each as a decimal.







5. $\frac{7}{10} =$ _____

6. $\frac{3}{10} =$ _____

7. $\frac{59}{100} =$ _____

8. $\frac{15}{100} =$ _____

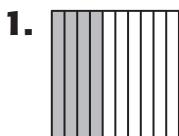
9. $\frac{8}{100} =$ _____

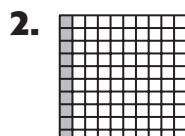
10. $\frac{9}{10} =$ _____

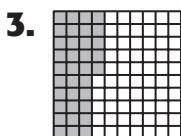
11. $\frac{64}{100} =$ _____

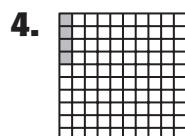
12. $\frac{1}{100} =$ _____

13. $\frac{14}{100} =$ _____

Hundredths**Write each as a decimal.**







5. $\frac{6}{10} =$ _____

6. $\frac{2}{10} =$ _____

7. $\frac{3}{10} =$ _____

8. $\frac{8}{10} =$ _____

9. $\frac{17}{100} =$ _____

10. $\frac{35}{100} =$ _____

11. $\frac{7}{100} =$ _____

12. $\frac{5}{100} =$ _____

13. nine tenths _____

14. sixteen hundredths _____

15. three hundredths _____

16. nine hundredths _____

17. eight hundredths _____

18. forty-one hundredths _____

For Exercises 19 and 20, write a fraction and a decimal.

19. There are 100 people at the game. Forty-two people are sitting.
What part of the group of people are not sitting? _____

20. Tim has seen 100 movies. 76 of the movies are comedies.
What part of the movies are not comedies? _____

13-3**Reteach****3MR2.3, 3NS3.4***Problem-Solving Strategy*

Bob, James, and Ruth are playing a decimal game. One person has 0.02 points. One person has 0.25 points. One person has 0.6 points. Bob does not have the least number of points. Ruth's score is in the hundredths. James has a score equivalent to $\frac{6}{10}$. What are the scores of each player?

Step 1 Understand	<p>Be sure you understand the problem. Read carefully.</p> <p>What do you know?</p> <ul style="list-style-type: none"> • The scores are 0.02, 0.25, and 0.6. • Bob does not have the least number of points. • Ruth's score is in the hundredths. • James has a score equivalent to $\frac{6}{10}$. <p>What do you need to know?</p> <ul style="list-style-type: none"> • You need to find
Step 2 Plan <ul style="list-style-type: none"> • Logical Reasoning • Draw a Picture or Diagram • Make a Graph • Act It Out • Make a Table or List • Find a Pattern • Guess and Check • Write an Equation • Work Backward • Solve a Simpler Problem 	<p>Make a plan.</p> <p>Choose a strategy.</p> <p>Use the <i>act it out</i> strategy to solve the problem.</p> <p>Have three people represent Bob, Ruth, and James. Write each score on a piece of paper. Give each person a number according to the facts.</p>

Problem-Solving Strategy (continued)

Step 3 Solve	<p>Carry out your plan.</p> <p>Give James 0.6 because it is the only number equivalent to $\frac{6}{10}$. Since 0.02 is the least number, give Bob 0.25. That means that Ruth has 0.02, which makes sense because it is in the hundredths.</p>
Step 4 Check	<p>Is the solution reasonable?</p> <p>Reread the problem.</p> <p>How can you check your answers?</p> <hr/>

Practice

1. Ed, Marsha, and Gene are playing a game with decimals. Each person has one of the following decimals: 0.5, 0.54, and 0.2. Ed's number is not equivalent to $\frac{5}{10}$ or $\frac{2}{10}$. Marsha's number is greater than Gene's number. What are the numbers of each player?

2. Cathy has 100 marbles. $\frac{28}{100}$ of them are blue. Thirty hundredths of her marbles are green. The rest are red. What decimal represents the number of marbles that are red?

Skills Practice*Problem-Solving Strategy***3MR2.3, 3NS3.4****Solve. Use the *act it out* strategy.**

1. Tickets to the movies cost \$8 for adults and \$5 for children. How much does a family of 2 adults and 4 children pay for tickets?

2. The Sanchez family stops in the grocery store. Juice bottles cost \$3. Paper towel rolls cost \$2. How much does it cost to buy 2 juice bottles and 3 paper towel rolls?

3. There are workers at the Science Center. There are 58 women. What decimal represents the workers who are men?

4. Lana's family travels 100 miles to her grandmother's house. After 40 miles, they stop for lunch. What decimal represents the part of the trip that they have left?

5. Sue, George, Paul, and Tina are in line for a movie. The first person in line is a boy. George is ahead of Sue, but not ahead of Tina. List the names in order from first to last in line.

6. Write a problem that you could use the act it out strategy to solve. Share it with others.

Decimals and Money

KEY	CONCEPT	Fractions, Decimals, and Money
Money	Words	Numbers
	one cent or one hundredth of a dollar	1¢ or \$0.01 $\frac{1}{100}$
	five cents or five hundredths of a dollar	5¢ or \$0.05 $\frac{5}{100}$
	ten cents or ten hundredths of a dollar	10¢ or \$0.10 $\frac{10}{100}$
	twenty-five cents or twenty-five hundredths of a dollar	25¢ or \$0.25 $\frac{25}{100}$
	fifty cents or fifty hundredths of a dollar	50¢ or \$0.50 $\frac{50}{100}$
	one hundred cents one hundred hundredths of a dollar	100¢ or \$1.00 $\frac{100}{100}$

Write a fraction for the part of a dollar the coin represents.

1. _____

2. _____

3. _____



4. Sadie went to the pet store to buy fish food. She spent 4 dimes and 10 pennies. What fraction of a dollar did Sadie spend?

Skills Practice*Decimals and Money***Write the part of the dollar each amount represents.****1.****2.****3.****4.****Solve.**

5. To buy bubbles, Taye needs 75 cents. He has 6 nickels, 2 dimes, and 1 quarter. Does he have enough?

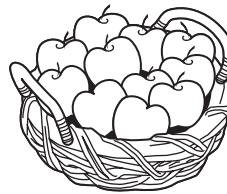
6. Julie spent $\frac{7}{10}$ of a dollar on a bag of trail mix. If she gave the clerk $\frac{75}{100}$ of a dollar, how much change did she get back?

7. Brad has 3 dimes and 2 quarters. How much money does he have altogether?

8. Curtis gives $\frac{1}{2}$ of all of the money he earns to his parents. If he earns \$50, how much will he give his parents?

*Problem-Solving Investigation***Choose a strategy**

Antonio picked 24 apples to make applesauce. It will take 12 apples for each batch of sauce. How many batches of sauce can Antonio make?



Step 1 Understand	Be sure you understand the problem. What do you know? <ul style="list-style-type: none"> • Antonio picked _____ apples. • It will take _____ apples to make a batch of applesauce. • You need to find how many batches of _____ Antonio can make.
Step 2 Plan <ul style="list-style-type: none"> • Guess and Check • Work a simpler problem • Make an organized list • Draw a picture • Act it out 	Make a plan. Choose a strategy. <p>You can draw a picture. Decide what facts you know. Plan what you will do and in what order. Use your plan to solve the problem. Then check your solution to make sure it makes sense.</p>

Problem-Solving Investigation (continued)

Step 3 Solve	<p>Carry out your plan.</p> <p>You know that you need to find out how many batches of applesauce Antonio can make with 24 apples.</p> <p>Draw 24 circles to represent the apples. Circle groups of 12. Write a division sentence.</p> <p>$24 \div 12 =$ _____</p>
Step 4 Check	<p>Is the solution reasonable?</p> <p>Reread the problem.</p> <p>How can you check your answer</p> <p>_____</p> <p>_____</p>

Use any strategy shown below to solve.

- Guess and Check • Draw a picture
- Work a simpler problem • Act it out
- Make an organized list

1. Carolina has 25 peanuts and she wants to share them. If she and each of her friends gets the same amount of peanuts, how many will each one get?

2. Becky went to the park with 6 friends. Two of them left early and 1 got hurt. How many are left to play with Becky?

Skills Practice*Problem-Solving Investigation***Use any strategy to solve.**

1. Dinah and Trey each have some money. The sum of their money is 78¢. The difference is 6¢. Dinah has more money than Trey. How much money do they each have?

2. Julie, Shawna, and Matt are in the lunch line. Julie is not first. Matt is behind Julie. What order are they standing in line? List their names from first to last.

3. The cashier gave Jaime \$0.48 in change. Jaime bought shampoo and toothpaste. The shampoo cost \$3.63. Jaime gave the cashier one \$5-bill and two \$1-bills. How much did the toothpaste cost?

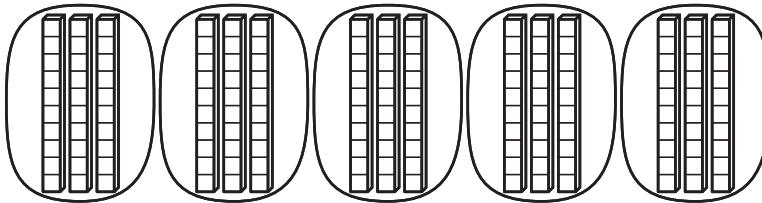
4. Katie went to lunch at 11:30. Before lunch, she had Math class for one hour. She went to Music class for 45 minutes before Math class. What time did Katie start Music class?

5. Don can order a small, medium, or large juice. He can order orange juice or apple juice. How many possible drink combinations can he order?

6. Paula has $\frac{1}{4}$ of a dollar. Rick has $\frac{8}{10}$ of a dollar. Bonnie has 5 nickels. If they combine their money, do they have enough to buy a game that costs \$1.50? Explain.

14-1**Reteach****3NS2.4, 3MR2.2***Multiply Multiples of 10, 100, and 1,000*Find 5×30 .

Make 5 groups with 30 in each group.



$$3 \text{ tens} + 3 \text{ tens} + 3 \text{ tens} + 3 \text{ tens} + 3 \text{ tens} = 15 \text{ tens} = 150$$

$$\text{So, } 5 \times 30 = 150.$$

Find $4 \times 3,000$. Use basic facts. Look for a pattern.

$$4 \times 3 = 4 \times 3 \text{ ones} = 12 \text{ ones} = 12$$

$$4 \times 30 = 4 \times 3 \text{ tens} = 12 \text{ tens} = 120$$

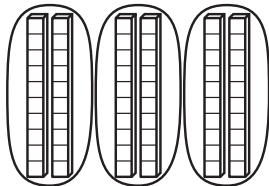
$$4 \times 300 = 4 \times 3 \text{ hundreds} = 12 \text{ hundreds} = 1,200$$

$$4 \times 3,000 = 4 \times 3 \text{ thousands} = 12 \text{ thousands} = 12,000$$

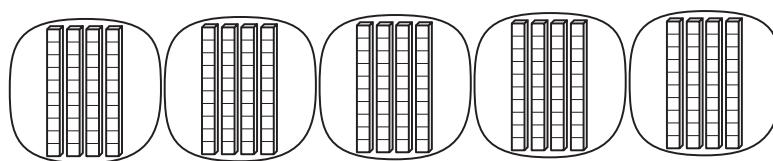
$$\text{So, } 4 \times 3,000 = 12,000.$$

Multiply.

$$1. 3 \times 20 = \underline{\hspace{2cm}} \text{ tens} = \underline{\hspace{2cm}}$$



$$2. 5 \times 40 = \underline{\hspace{2cm}} \text{ tens} = \underline{\hspace{2cm}}$$



$$3. 7 \times 20 = \underline{\hspace{2cm}} \text{ tens} = \underline{\hspace{2cm}}$$

$$4. 4 \times 20 = \underline{\hspace{2cm}} \text{ tens} = \underline{\hspace{2cm}}$$

$$5. 2 \times 30 = \underline{\hspace{2cm}}$$

$$6. 3 \times 30 = \underline{\hspace{2cm}}$$

$$7. 7 \times 20 = \underline{\hspace{2cm}}$$

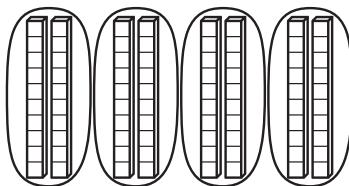
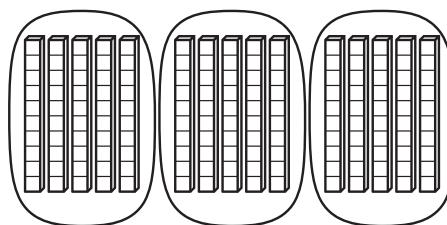
$$8. 5 \times 60 = \underline{\hspace{2cm}}$$

$$9. 4 \times 700 = \underline{\hspace{2cm}}$$

$$10. 5 \times 600 = \underline{\hspace{2cm}}$$

$$11. 2 \times 9,000 = \underline{\hspace{2cm}}$$

$$12. 6 \times 8,000 = \underline{\hspace{2cm}}$$

14-1**Skills Practice****3NS2.4, 3MR2.2***Multiply Multiples of 10, 100, and 1,000***Multiply. Use basic facts and patterns.****1.****2.**

3. $5 \times 2 = \underline{\hspace{2cm}}$

$5 \times \underline{\hspace{2cm}} = 100$

$5 \times \underline{\hspace{2cm}} = 1,000$

$\underline{\hspace{2cm}} \times 2,000 = 10,000$

4. $3 \times 9 = \underline{\hspace{2cm}}$

$3 \times \underline{\hspace{2cm}} = 270$

$3 \times 900 = \underline{\hspace{2cm}}$

$3 \times \underline{\hspace{2cm}} = 27,000$

Multiply. You may use models.

5. $5 \times 30 = \underline{\hspace{2cm}}$

6. $5 \times 40 = \underline{\hspace{2cm}}$

7. $4 \times 7,000 = \underline{\hspace{2cm}}$

8. $3 \times 800 = \underline{\hspace{2cm}}$

9. $6 \times 20 = \underline{\hspace{2cm}}$

10. $3 \times 60 = \underline{\hspace{2cm}}$

11. $8 \times 40 = \underline{\hspace{2cm}}$

12. $9 \times 300 = \underline{\hspace{2cm}}$

13. $6 \times 30 = \underline{\hspace{2cm}}$

14. $3 \times 40 = \underline{\hspace{2cm}}$

15. $80 \times 5 = \underline{\hspace{2cm}}$

16. $600 \times 5 = \underline{\hspace{2cm}}$

17. $4,000 \times 6 = \underline{\hspace{2cm}}$

18. $700 \times 6 = \underline{\hspace{2cm}}$

19. $8 \times 7,000 = \underline{\hspace{2cm}}$

Solve.

20. A library spends \$1,000 each month for new books. How much does it spend in 6 months?

21. Tara puts some of her stickers in a book. She fills 2 pages. Each page has 40 stickers on it. How many stickers are on those pages?

14-2**Reteach****3NS2.1, 3MR2.3***Problem-Solving Strategy*

Robin, Mark, and Monica each have one pet. The pets include a cat, a dog, and a bird. Robin's pet has fur. Mark's pet has two legs. Monica does not have a cat. What pet does each person have?

Step 1 Understand	<p>Be sure you understand the problem. Read carefully.</p> <p>What do you know?</p> <ul style="list-style-type: none"> • Each person has a different pet. • Robin's pet has fur. • Mark's pet has two legs. • Monica does not have a cat. <p>What do you need to know?</p> <ul style="list-style-type: none"> • You need to find
Step 2 Plan	<p>Make a plan. Choose a strategy.</p> <p>Make a table to organize the information. Then use logical reasoning to solve the problem.</p>
Step 3 Solve	<p>Carry out your plan. Robin's pet has fur. Write <i>no</i> next to Robin's name under bird.</p> <p>Mark's pet has two legs. Write <i>yes</i> next to his name under bird. Write <i>no</i> next to his name under cat and dog.</p>

Problem-Solving Strategy (continued)

	<p>Since Mark has the bird, write <i>no</i> next to Monica's name under bird. Monica does not have a cat. Write <i>no</i> next to her name under cat. That means that Monica has a dog. Since Monica has a dog, write <i>no</i> next to Robin's name under dog. That means that Robin has a cat.</p> <table border="1"> <thead> <tr> <th></th><th>Cat</th><th>Dog</th><th>Bird</th></tr> </thead> <tbody> <tr> <td>Robin</td><td></td><td></td><td></td></tr> <tr> <td>Mark</td><td></td><td></td><td></td></tr> <tr> <td>Monica</td><td></td><td></td><td></td></tr> </tbody> </table> <p>So, Robin has a cat, Mark has a bird, and Monica has a dog.</p>		Cat	Dog	Bird	Robin				Mark				Monica			
	Cat	Dog	Bird														
Robin																	
Mark																	
Monica																	
Step 4 Check	<p>Is the solution reasonable? Reread the problem.</p> <p>How can you check your answers?</p> <hr/> <hr/> <hr/>																

Solve. Use logical reasoning.

1. Kelly, Sally, Jane, and Ralph are eating lunch. They each have a different lunch: pepperoni pizza, ham sandwich, grilled cheese sandwich, and hot dog. Kelly does not eat meat. Sally does not like pizza, Jane is not eating a sandwich, and Ralph is eating a hot dog. Which lunch does each person have?

Solve. Use logical reasoning.

1. Doug, Rachel, Mike, and Holly are each wearing different colored shoes. Doug is not wearing black. Rachel is not wearing red or blue. Holly is not wearing blue. Mike is wearing brown shoes. What color of shoes is each person wearing? Complete the table.

	brown	black	red	blue
Doug		no		
Rachel			no	no
Mike	yes	no	no	no
Holly				no

3. Marissa, Stephan, and Neal are standing in line for the movies. Stephan is not first. Marissa is next to Stephan. Neal is last. List the order from first to last in which they are standing?

5. Four friends are each wearing different colored shirts. The shirts are pink, yellow, blue, and green. Davey is not wearing pink. Dee is not wearing yellow. Chaz is not wearing green or pink. Phil is wearing blue. What color shirt is each person wearing?

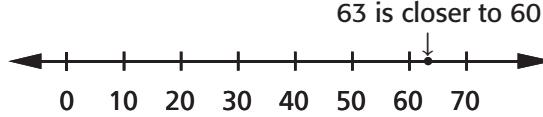
2. Sue, Kara, Jonny, and Pat each have a different chore. Sue does not do dishes, Kara does not fold laundry or make beds, Jonny does not make beds or cut grass. Pat cuts the grass. What chores does each person do?

4. Maria, Jason, Thomas, and Taj are running for class president. Jason has 68 votes more than Taj, Maria has 25 fewer votes than Jason, Thomas has twice as many votes as Taj. Taj has 65 votes. Who won the election? How many votes did each person receive?

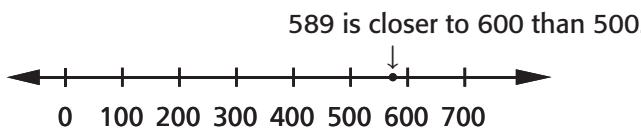
6. Darius, Chuck, Sam, and Erin are lining up for a play. Darius is not first. Chuck is next to Sam and Erin. Sam is not last. Erin is first. What order are they standing in line for the play?

14-3**Reteach****3NS2.4, 3MR2.1***Estimate Products***To estimate a product, round the factor that is greater than 10.**Estimate: 4×63

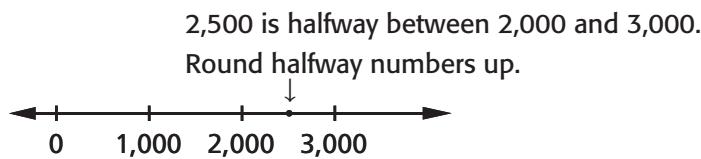
$$4 \times 60 = 240$$

Estimate: 3×589

$$3 \times 600 = 1,800$$

Estimate: $8 \times 2,500$

$$8 \times 3,000 = 24,000$$

**Estimate. Show your work.**

1. 5×33 _____

2. 7×48 _____

3. 2×175 _____

4. 6×837 _____

5. 3×624 _____

Estimate each product.

6. 2×29 _____

7. 3×88 _____

8. 4×41 _____

9. 4×532 _____

10. 8×816 _____

11. 7×365 _____

12. 6×593 _____

13. 8×294 _____

14. 4×290 _____

15. 9×756 _____

16. 5×320 _____

17. 9×134 _____

Skills Practice*Estimate Products***3NS2.4, 3MR2.1****Estimate. Round to the nearest ten.**

1. 56
 $\times 1$
 $\underline{\quad}$

2. 39
 $\times 0$
 $\underline{\quad}$

3. 82
 $\times 1$
 $\underline{\quad}$

4. 81
 $\times 7$
 $\underline{\quad}$

5. 90
 $\times 1$
 $\underline{\quad}$

6. 61
 $\times 8$
 $\underline{\quad}$

7. $43 \times 5 =$ _____

8. $9 \times 28 =$ _____

9. $22 \times 4 =$ _____

10. $72 \times 4 =$ _____

11. $6 \times 59 =$ _____

12. $91 \times 7 =$ _____

13. $54 \times 6 =$ _____

14. $7 \times 43 =$ _____

15. $13 \times 3 =$ _____

16. $6 \times 17 =$ _____

17. $85 \times 2 =$ _____

18. $5 \times 47 =$ _____

Estimate. Round to the nearest hundred.

19. $9 \times 101 =$ _____

20. $152 \times 3 =$ _____

21. $6 \times 722 =$ _____

22. $567 \times 8 =$ _____

23. $487 \times 5 =$ _____

24. $2 \times 913 =$ _____

25. $7 \times 238 =$ _____

26. $203 \times 4 =$ _____

27. $1 \times 455 =$ _____

Solve.

28. There are 432 rows of 7 chairs in the movie theater. About how many chairs are there?

29. There are 26 tables in the room and 6 chairs around each table. About how many chairs are there?

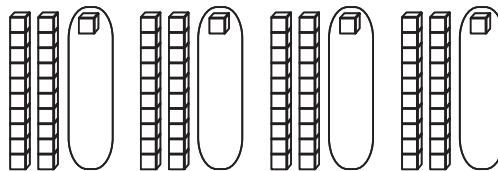
14-4**Reteach****3NS2.4****Multiply by a One-Digit Number****You can multiply using models or pencil and paper.**Find 4×21 .

Show 4 groups of 21.

You can record this way:

Step 1

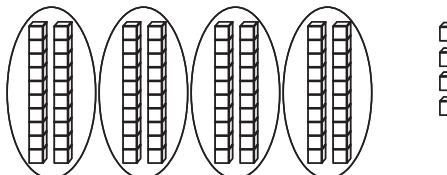
Multiply the ones.

 4×1 ones = 4 ones

$$\begin{array}{r}
 21 \\
 \times 4 \\
 \hline
 4
 \end{array}$$

Step 2

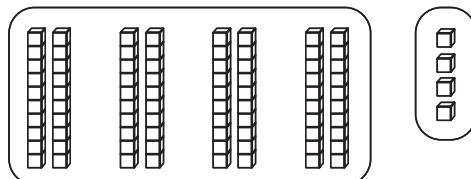
Multiply the tens.

 4×2 tens = 8 tens

$$\begin{array}{r}
 21 \\
 \times 4 \\
 \hline
 4 \\
 + 80 \\
 \hline
 \end{array}$$

Step 3

Add.



$$\begin{array}{r}
 21 \\
 \times 4 \\
 \hline
 4 \\
 + 80 \\
 \hline
 84
 \end{array}$$

Complete to find the product. You may use models to help you.

1. 23
 $\times 2$
 \hline

2. 44
 $\times 2$
 \hline

3. 31
 $\times 3$
 \hline

4. 23
 $\times 3$
 \hline

5. 13
 $\times 3$
 \hline

6. 14
 $\times 2$
 \hline

7. 24
 $\times 2$
 \hline

8. 13
 $\times 2$
 \hline

9. 22
 $\times 4$
 \hline

10. 12
 $\times 4$
 \hline

11. $8 \times 11 =$ _____

12. $2 \times 11 =$ _____

13. $3 \times 33 =$ _____

14. $22 \times 3 =$ _____

15. $11 \times 9 =$ _____

16. $2 \times 22 =$ _____

14-4**Skills Practice****3NS2.4***Multiply by a One-Digit Number***Multiply.**

1.
$$\begin{array}{r} 11 \\ \times 6 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 12 \\ \times 2 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 22 \\ \times 2 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 14 \\ \times 2 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 24 \\ \times 2 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 21 \\ \times 4 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 40 \\ \times 2 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 20 \\ \times 3 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 13 \\ \times 3 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 22 \\ \times 3 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 12 \\ \times 3 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 21 \\ \times 3 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 11 \\ \times 5 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 11 \\ \times 2 \\ \hline \end{array}$$

16. $13 \times 2 = \underline{\hspace{2cm}}$

17. $12 \times 4 = \underline{\hspace{2cm}}$

18. $9 \times 11 = \underline{\hspace{2cm}}$

19. $4 \times 20 = \underline{\hspace{2cm}}$

20. $21 \times 2 = \underline{\hspace{2cm}}$

21. $40 \times 2 = \underline{\hspace{2cm}}$

22. $7 \times 11 = \underline{\hspace{2cm}}$

23. $22 \times 4 = \underline{\hspace{2cm}}$

24. $11 \times 8 = \underline{\hspace{2cm}}$

25. Multiply 21 by 3. $\underline{\hspace{2cm}}$

26. Multiply 20 by 2. $\underline{\hspace{2cm}}$

27. Multiply 11 by 3. $\underline{\hspace{2cm}}$

28. Multiply 13 by 2. $\underline{\hspace{2cm}}$

29. Multiply 30 by 2. $\underline{\hspace{2cm}}$

30. Multiply 11 by 4. $\underline{\hspace{2cm}}$

Solve.

31. A rectangle is 3 tiles wide by 13 tiles high. How many tiles are in the rectangle?

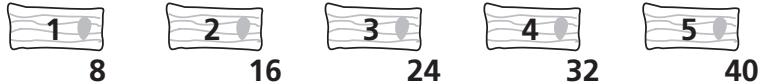
32. Books are stacked in 3 stacks with 12 books in each stack. How many books are in the stacks?

Problem-Solving Investigation

If Dave cuts a 40-inch-long piece of wood into 8-inch pieces, how many pieces will he have?

Step 1 Understand	<p>Be sure you understand the problem.</p> <p>What do you know?</p> <ul style="list-style-type: none"> • A piece of wood is _____ inches long. • The wood will be cut into _____ -inch pieces. <p>What do you need to find?</p> <ul style="list-style-type: none"> • You need to find how many _____ <hr/> <hr/>
Step 2 Plan <ul style="list-style-type: none"> • Logical reasoning • Draw a picture • Act it out • Make an organized list • Solve a simpler problem 	<p>Make a plan.</p> <p>Choose a strategy.</p> <p>You may draw a picture or diagram. Show a piece of wood that is 40 inches long. Count by 8s to see how many 8-inch pieces will fit.</p> <p>You can also write a number sentence (an equation). Each piece of wood is the same length. Use division to find how many 8-inch pieces of wood will fit.</p>

Problem-Solving Investigation (continued)

Step 3 Solve	<p>Carry out your plan.</p> <p>Plan 1 Draw a diagram. Count up groups of 8.</p>  <p>Count. There are _____ pieces of wood in all.</p> <p>Plan 2 Write a division sentence.</p> <p>_____ \div _____ = _____</p> <p>He will have _____ pieces of wood.</p>
Step 4 Check	<p>Is the solution reasonable?</p> <p>Reread the problem.</p> <p>How can you check your answer?</p> <p>_____</p> <p>_____</p>

Solve.

1. Thom and Julie collected cans for recycling. Thom collected 3 times as many as Julie. The total number collected by their class was 400 cans. Thom and Julie collected $\frac{1}{4}$ of that. How many cans did they each collect?

2. Frank, Joyce, Dalia, and Amando were waiting for the train. Frank was next to Dalia. Dalia was not next to Amando. Amando was next to Joyce, but not next to Frank. In what order were they standing?

*Problem-Solving Investigation***Use any strategy shown below to solve.**

- Use the four-step plan
- Solve a simpler problem
- Make an organized list
- Draw a picture
- Act it out
- Use logical reasoning

1. There are 86 students each on a bus. There are 5 buses that arrived at school. About how many students arrived at school?

2. Nicolas, Aaron, Olivia, and Jake each spent \$25 at the store on school supplies. If Olivia spends \$15 more on a new shirt, how much money did they spend in all?

3. Mario and Laura each have 17 sea shells. If Laura finds 25 more, will they have enough to completely fill a bag that holds 75 shells? Explain.

4. Sherry is making 23 batches of muffins for the bake sale. Each batch of muffins will sell for \$3. How much money will be made at the bake sale if all the muffins sell?

5. Michele eats 20 grapes at lunch. She eats 35 grapes at dinner. If she eats 9 grapes for a snack, how many grapes will she eat in all? If there are 15 grapes left for breakfast, how many did Michele have in all?

6. Each box has 38 crackers. About how many crackers are in 7 boxes?

7. Dave went to school, then to the library for 1 hour, then to the store before returning home. He spends 30 minute in travel time. He gets out of school at 3:00. If he arrived at home at 5:30 how long did he spend at the store?

Multiply Two-Digit NumbersFind 4×16 .**Step 1**

Multiply the ones.
Regroup if necessary.

$$\begin{array}{r}
 2 \leftarrow 2 \text{ tens} \\
 16 \\
 \times 4 \\
 \hline
 4 \leftarrow 4 \text{ ones}
 \end{array}$$

Think: $4 \times 16 = 24$ ones
 24 ones = 2 tens 4 ones

Step 2

Multiply the tens.
Add all the tens.

$$\begin{array}{r}
 2 \\
 16 \\
 \times 4 \\
 \hline
 64
 \end{array}$$

Think: 4×1 ten = 4 tens
 4 tens + 2 tens = 6 tens

So, $4 \times 16 = 64$.

Multiply. Remember to regroup if necessary.

1.
 15
 $\times 3$
 \hline

2.
 38
 $\times 3$
 \hline

3.
 59
 $\times 7$
 \hline

4.
 68
 $\times 2$
 \hline

5.
 74
 $\times 8$
 \hline

6.
 28
 $\times 5$
 \hline

7.
 82
 $\times 6$
 \hline

8.
 45
 $\times 4$
 \hline

9.
 49
 $\times 2$
 \hline

10.
 53
 $\times 8$
 \hline

11.
 45
 $\times 6$
 \hline

12.
 58
 $\times 5$
 \hline

13.
 38
 $\times 7$
 \hline

14.
 95
 $\times 4$
 \hline

15.
 34
 $\times 8$
 \hline

16. $2 \times 39 =$ _____

17. $45 \times 7 =$ _____

18. $6 \times 77 =$ _____

Skills Practice*Multiply Two-Digit Numbers***Multiply.**

1.
$$\begin{array}{r} 31 \\ \times 8 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 38 \\ \times 5 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 28 \\ \times 2 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 43 \\ \times 7 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 17 \\ \times 8 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 24 \\ \times 8 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 35 \\ \times 5 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 75 \\ \times 2 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 25 \\ \times 5 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 78 \\ \times 5 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 59 \\ \times 2 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 14 \\ \times 3 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 61 \\ \times 6 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 79 \\ \times 3 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 44 \\ \times 9 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 18 \\ \times 5 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 64 \\ \times 2 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 36 \\ \times 7 \\ \hline \end{array}$$

19. $2 \times 92 =$ _____

20. $75 \times 9 =$ _____

21. $3 \times 85 =$ _____

22. $9 \times 12 =$ _____

23. $2 \times 15 =$ _____

24. $32 \times 4 =$ _____

Solve.

25. Becky charges \$25 rent for each space at her flea market. If 8 people rent space, how much money does Becky get?

26. Mrs. Sands teaches 9 different classes at the high school. There are 36 students in each class. How many students does she teach?

14-7**Reteach****3NS2.4, 3MR2.1***Multiply Greater Numbers*

Use what you know about multiplying 2-digit numbers to multiply 3- and 4-digit numbers.

Find $2 \times 2,739$.

Step 1	Step 2	Step 3	Step 4
Multiply the ones. Regroup if necessary.	Multiply the tens. Regroup if necessary.	Multiply the hundreds. Regroup if necessary.	Multiply the thousands. Regroup if necessary.
$ \begin{array}{r} 1 \\ 2,739 \\ \times 2 \\ \hline 8 \end{array} $ $2 \times 9 \text{ ones} = 18 \text{ ones}$ $18 \text{ ones} = 1 \text{ ten } 8 \text{ ones}$	$ \begin{array}{r} 1 \\ 2,739 \\ \times 2 \\ \hline 78 \end{array} $ $2 \times 3 \text{ tens} = 6 \text{ tens}$ $6 \text{ tens} + 1 \text{ ten} = 7 \text{ tens}$	$ \begin{array}{r} 1 \ 1 \\ 2,739 \\ \times 2 \\ \hline 478 \end{array} $ $2 \times 7 \text{ hundreds} = 14 \text{ hundreds}$ $14 \text{ hundreds} = 1 \text{ thousand } 4 \text{ hundreds}$	$ \begin{array}{r} 1 \ 1 \\ 2,739 \\ \times 2 \\ \hline 5,478 \end{array} $ $2 \times 2 \text{ thousands} = 4 \text{ thousands}$ $4 \text{ thousands} = 4 \text{ thousands } + 1 \text{ thousand } = 5 \text{ thousands}$

Multiply.

1.
$$\begin{array}{r}
 \boxed{} \boxed{} \\
 2 \ 5 \ 2 \\
 \times \ 3 \\
 \hline
 \end{array}$$

2.
$$\begin{array}{r}
 \boxed{} \boxed{} \\
 1 \ 6 \ 4 \\
 \times \ 4 \\
 \hline
 \end{array}$$

3.
$$\begin{array}{r}
 \boxed{} \boxed{} \\
 7 \ 3 \ 6 \\
 \times \ 6 \\
 \hline
 \end{array}$$

4.
$$\begin{array}{r}
 \boxed{} \boxed{} \\
 205 \\
 \times \ 8 \\
 \hline
 \end{array}$$

5.
$$\begin{array}{r}
 \boxed{} \boxed{} \boxed{} \\
 1,246 \\
 \times \ 3 \\
 \hline
 \end{array}$$

6.
$$\begin{array}{r}
 \boxed{} \boxed{} \boxed{} \\
 5,718 \\
 \times \ 4 \\
 \hline
 \end{array}$$

7.
$$\begin{array}{r}
 \boxed{} \boxed{} \boxed{} \\
 3,962 \\
 \times \ 7 \\
 \hline
 \end{array}$$

8.
$$\begin{array}{r}
 \boxed{} \boxed{} \boxed{} \\
 2498 \\
 \times \ 5 \\
 \hline
 \end{array}$$

Skills Practice**3NS2.4, 3MR2.1***Multiply Greater Numbers***Multiply.**

1. 245
 $\times 2$
 $\underline{\quad}$

2. 121
 $\times 6$
 $\underline{\quad}$

3. 240
 $\times 7$
 $\underline{\quad}$

4. 324
 $\times 4$
 $\underline{\quad}$

5. 605
 $\times 8$
 $\underline{\quad}$

6. 322
 $\times 7$
 $\underline{\quad}$

7. 573
 $\times 3$
 $\underline{\quad}$

8. 689
 $\times 2$
 $\underline{\quad}$

9. 495
 $\times 5$
 $\underline{\quad}$

10. 225
 $\times 9$
 $\underline{\quad}$

11. 304
 $\times 8$
 $\underline{\quad}$

12. 923
 $\times 4$
 $\underline{\quad}$

13. $2,313$
 $\times 3$
 $\underline{\quad}$

14. $5,112$
 $\times 4$
 $\underline{\quad}$

15. $3,043$
 $\times 6$
 $\underline{\quad}$

16. $1,045$
 $\times 8$
 $\underline{\quad}$

17. $1,623$
 $\times 7$
 $\underline{\quad}$

18. $2,418$
 $\times 9$
 $\underline{\quad}$

19. $9,372$
 $\times 5$
 $\underline{\quad}$

20. $2,094$
 $\times 9$
 $\underline{\quad}$

21. $2 \times 638 =$ _____

22. $6 \times 704 =$ _____

23. $2 \times 225 =$ _____

24. $8 \times 1,976 =$ _____

25. $4 \times 2,430 =$ _____

26. $3 \times 4,099 =$ _____

Solve.

27. The field trip to the art museum costs \$11 per student. Mrs. King collects the money from the 6 students in her group. How much does she collect?

28. Each wing of the museum has 2,500 pieces of art on display. How many pieces of art are displayed in the 4 wings of the museum?

Multiply Money

You learned how to multiply multidigit numbers. You also learned how to multiply multidigit numbers with regrouping. Multiplying money is no different. Just remember to add the decimal point two spaces over, and don't forget the dollar sign!

Let's try a problem together. First, pretend it's just a regular multiplication problem.

1. $632 \times 4 =$ _____

Think: Four times two equals 8. Four times three equals 12, carry the one above the 6. Four times six equals 24 plus one makes 25. Answer: 2,528.

600 times 4 equals 2,400, so my answer is reasonable.

2. Now look at the problem with decimal points:

$6.32 \times 4 =$ _____

Think: My answer is 2,528, but slide that decimal two places over from the right. My answer is really 25.28.

3. Finally, remember that you are multiplying money.

What's missing? A dollar sign!

$\$6.32 \times 4 =$ _____

Think: that dollar sign is missing, and it belongs in front of my answer. \$25.28.

Remember, you can use a 0 right after the dollar sign as a place holder. For example, you can write 99 cents as \$0.99. They mean the same thing.

**Multiply.**

1. $\$7.46 \times 4 =$ _____

2. $\$6.92 \times 3 =$ _____

3. $\$1.07 \times 5 =$ _____

4. $\$2.05 \times 8 =$ _____

5. $\$0.67 \times 2 =$ _____

6. $\$3.19 \times 4 =$ _____

7. Mrs. Pena bought frozen yogurt for Alonso and three of his friends. Each cone was \$2.19. How much did Mrs. Pena spend on cones? _____

Multiply Money**Multiply.**

1. $\$0.84 \times 6 =$ _____

2. $\$4.60 \times 2 =$ _____

3. $\$1.32 \times 5 =$ _____

4. $\$0.74 \times 9 =$ _____

5. $\$2.19 \times 7 =$ _____

6. $\$5.08 \times 4 =$ _____

7. $\$3.29 \times 3 =$ _____

8. $\$0.98 \times 8 =$ _____

9. $\$6.15 \times 2 =$ _____

10. $\$3.59 \times 4 =$ _____

11. $\$1.17 \times 6 =$ _____

12. $\$4.04 \times 2 =$ _____

13. $\$2.32 \times 3 =$ _____

14. $\$0.76 \times 5 =$ _____

15. $\$5.25 \times 4 =$ _____

16. $\$9.15 \times 7 =$ _____

17. $\$2.55 \times 6 =$ _____

18. $\$0.65 \times 8 =$ _____

Solve.

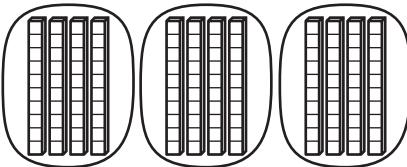
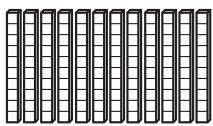
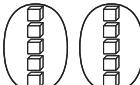
19. Mrs. Diaz bought four packs of hot dogs at \$4.79 each and 3 packages of buns at \$1.79 each. How much did Mrs. Diaz spend on buns and hot dogs? _____

20. Erin was buying supplies for her new pet hamster. She needed two packages of bedding at \$3.99 each, four bags of treats at \$2.89 each, and three bags of food at \$4.79 each. How much did Erin spend on her new pet? _____

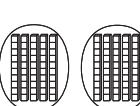


15-1**Reteach****3NS2.5***Divide Multiples of 10, 100, and 1,000***You can use models to divide multiples of 10.**Find $120 \div 3$.

First model 120. Then divide the models into 3 groups.

So, $120 \div 3 = 40$.**Use basic facts and division patterns to divide.**Find $100 \div 2$.If $10 \div 2 = 5$,

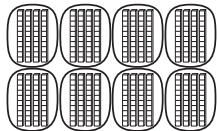
$$10 \div 2 = 5$$

then $10 \text{ tens} \div 2 = 5 \text{ tens}$.

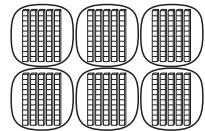
$$100 \div 2 = 50$$

So, $100 \div 2 = 50$.**Divide.**

1. $320 \div 8 =$ _____



2. $300 \div 6 =$ _____



3. $8 \div 4 =$ _____

$800 \div 4 =$ _____

4. $15 \div 3 =$ _____

$150 \div 3 =$ _____

Divide. You may use base-ten blocks.

5. $2 \overline{)160}$

6. $4 \overline{)280}$

7. $8 \overline{)240}$

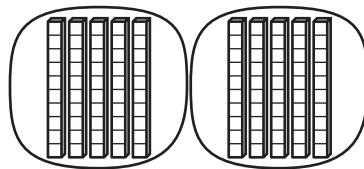
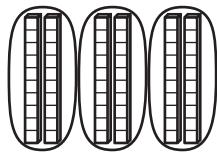
8. $6 \overline{)180}$

9. $7 \overline{)3,500}$

10. $9 \overline{)2,700}$

11. $3 \overline{)90}$

12. $5 \overline{)4,000}$

*Divide Multiples of 10, 100, and 1,000***Write a division sentence. Then solve.****1.** _____**2.** _____

3. An engineer estimates that a job will take 640 hours. If the engineer works 8 hours each day, how many days will it take to finish the job?

4. The engineer gives part of the job to 4 workers. If they each work the same number of hours and they work a total of 200 hours, how many hours do they each work?

Divide.

5. $3 \overline{)1,800}$

6. $4 \overline{)240}$

7. $9 \overline{)270}$

8. $2 \overline{)140}$

9. $3 \overline{)120}$

10. $8 \overline{)6,400}$

11. $7 \overline{)350}$

12. $4 \overline{)3,600}$

13. $7 \overline{)560}$

14. $3 \overline{)240}$

15. $7 \overline{)140}$

16. $6 \overline{)240}$

17. $1,800 \div 2 =$ _____ **18.** $60 \div 2 =$ _____ **19.** $270 \div 3 =$ _____

20. $250 \div 5 =$ _____ **21.** $6,300 \div 7 =$ _____ **22.** $300 \div 5 =$ _____

23. $320 \div 4 =$ _____ **24.** $160 \div 2 =$ _____ **25.** $2,800 \div 4 =$ _____

Estimate Quotients

You can use rounding and basic facts to help you estimate quotients.

Estimate $375 \div 6$.

Round 375 to the nearest ten that has a basic fact you can use.

$6 \times 1 = 6$	$6 \times 6 = 36$
$6 \times 2 = 12$	$6 \times 7 = 42$
$6 \times 3 = 18$	$6 \times 8 = 48$
$6 \times 4 = 24$	$6 \times 9 = 54$
$6 \times 5 = 30$	$6 \times 10 = 60$

375 is between 360 and 420.

Try $360 \div 6 = 60$.

Try $420 \div 6 = 70$.

So, $375 \div 6$ is about 60.

Estimate by rounding. Circle the basic fact you used.

1. $184 \div 4$ _____	$180 \div 3$	$200 \div 4$	$240 \div 4$
2. $110 \div 5$ _____	$100 \div 5$	$120 \div 6$	$100 \div 2$
3. $280 \div 3$ _____	$270 \div 3$	$210 \div 3$	$280 \div 4$
4. $405 \div 8$ _____	$400 \div 5$	$400 \div 8$	$320 \div 8$
5. $300 \div 7$ _____	$210 \div 7$	$300 \div 6$	$280 \div 7$
6. $57 \div 2$ _____	$56 \div 7$	$600 \div 2$	$60 \div 2$

Estimate by rounding. Write the equation you used to solve.

7. $370 \div 6 =$ _____ **8.** $200 \div 9 =$ _____ **9.** $124 \div 4 =$ _____

10. $490 \div 9 =$ _____ **11.** $253 \div 3 =$ _____ **12.** $750 \div 8 =$ _____

Skills Practice**3NS2.5 3MR2.1***Estimate Quotients***Estimate by rounding.**

1. $6\overline{)63}$

2. $7\overline{)562}$

3. $9\overline{)359}$

4. $8\overline{)390}$

5. $3\overline{)274}$

6. $3\overline{)118}$

7. $7\overline{)214}$

8. $5\overline{)392}$

9. $2\overline{)156}$

10. $2\overline{)142}$

11. $6\overline{)421}$

12. $6\overline{)361}$

13. $301 \div 5$ _____

14. $242 \div 3$ _____

15. $492 \div 7$ _____

16. $563 \div 8$ _____

17. $204 \div 5$ _____

18. $122 \div 2$ _____

ALGEBRA Compare. Write $>$ or $<$.

19. $100 \div 2$ 40

20. $90 \div 3$ 40

21. $150 \div 3$ 60

22. $270 \div 9$ 30

23. $250 \div 5$ 60

24. $400 \div 8$ 70

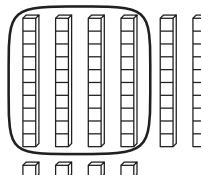
Solve.

25. There are 390 students going on a trip to a factory. They fill 5 buses. Each bus holds the same number of students. About how many students does each bus hold?

26. At the factory tour, the guide tells the students that each worker makes an average of 250 parts each day. About how many parts each hour does a worker make during an 8-hour day?

15-3**Reteach****3NS2.5, 3NS2.3****Two-Digit Quotients****Find $64 \div 4$.****Step 1**

Decide if there are enough tens for 4 groups.



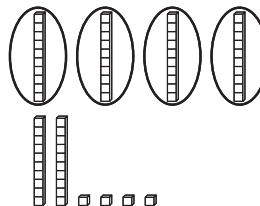
$$4 < 6$$

$$4 \overline{)64}$$

There are enough tens, so the first digit goes in the tens place.

Step 2

Divide the tens into 4 groups



$$\begin{array}{r} 1 \\ 4 \overline{)64} \\ -4 \downarrow \\ 24 \end{array}$$

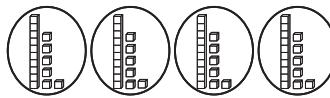
1 ten in each group
4 tens used
2 tens left

Bring down the ones.

Step 3

Regroup 2 tens 4 ones as 24 ones. Divide the ones into 4 groups.

$$So, 64 \div 4 = 16.$$



$$\begin{array}{r} 16 \\ 4 \overline{)64} \\ -4 \downarrow \\ 24 \\ -24 \\ \hline 0 \end{array}$$

6 ones in each group
24 ones to start
24 ones used
0 ones left

Divide. Use models if needed. Check your answer.

$$\begin{array}{r} \boxed{} \boxed{} \\ 3 \overline{)84} \\ -6 \downarrow \\ \boxed{} 4 \\ - \boxed{} \boxed{} \\ \hline \end{array}$$

$$\begin{array}{r} \boxed{} \boxed{} \\ 5 \overline{)95} \\ - \boxed{} \downarrow \\ \boxed{} 5 \\ - \boxed{} \boxed{} \\ \hline \end{array}$$

$$\begin{array}{r} \boxed{} \boxed{} \\ 4 \overline{)88} \\ - \boxed{} \downarrow \\ \boxed{} 8 \\ - \boxed{} \boxed{} \\ \hline \end{array}$$

Skills Practice**3NS2.5, 3NS2.3***Two-Digit Quotients***Divide. Use models if needed. Check your answer.**

1. $5 \overline{)65}$

2. $5 \overline{)85}$

3. $4 \overline{)64}$

4. $3 \overline{)99}$

5. $5 \overline{)60}$

6. $7 \overline{)84}$

7. $2 \overline{)86}$

8. $7 \overline{)91}$

9. $6 \overline{)96}$

10. $4 \overline{)76}$

11. $4 \overline{)96}$

12. $8 \overline{)96}$

13. $3 \overline{)93}$

14. $6 \overline{)84}$

15. $3 \overline{)84}$

16. $2 \overline{) \$62}$

17. $6 \overline{)78}$

18. $2 \overline{) \$92}$

19. $5 \overline{)80}$

20. $2 \overline{) \$30}$

21. $98 \div 7 =$ _____

22. $48 \div 3 =$ _____

23. $50 \div 2 =$ _____

24. $90 \div 5 =$ _____

25. $104 \div 8 =$ _____

26. $91 \div 7 =$ _____

27. $72 \div 4 =$ _____

28. $88 \div 8 =$ _____

29. $\$72 \div 4 =$ _____

30. $60 \div 2 =$ _____

31. $63 \div 3 =$ _____

32. $72 \div 6 =$ _____

Solve.

33. Dave earns \$70 for cleaning a house. He splits the money equally with a helper. How much money do they each get?

34. Ruby earns \$96 in tips at her job as a waitress. She divides her money into 3 equal amounts for taxes, spending, and saving. How much money does she have for spending?

*Problem-Solving Strategy***Work Backward**

Aretha rode on a bus for 2 miles from home to the train station. Then she took a train to the city. She returned home the same way. She traveled 16 miles total. How many miles did she travel on the train each way?

Step 1 Understand	What do you need to find? You need to find how many miles she traveled each way on the train.
Step 2 Plan	Make a plan. Work backward. She traveled 16 miles total. Each bus ride was two miles.
Step 3 Solve	Carry out your plan. Step 1 Find the number of miles each way. $16 \div 2 = 8$ Step 2 She traveled 2 miles on the bus each way. $8 - 2 = 6$ She traveled 6 miles each way on the train.
Step 4 Check	Check your answer. Make sure your answer is reasonable.

Solve. Use the *work backward* strategy.

1. The South Sound Ferry has a snack bar. Drinks cost \$1 and hamburgers cost \$3. Julia has 1 drink and 1 hamburger. Julia and Harry spend \$12 altogether. If Harry buys the same number of each item, how many drinks and hamburgers does he have?
2. Tickets for the ferry are \$5 for adults and \$2 for children. The Lin family spends \$16 to ride the ferry. How many children do Mr. and Mrs. Lin have?

Problem-Solving Strategy (continued)

3. Marisol and her sister Marta spend \$3.20 on two bus tickets to the carnival. Once at the carnival, Marisol buys a popcorn for \$4.25 and Marta buys a hot dog for \$2.75. They each get a caramel apple, which cost \$1.50 each. If they began with \$20.00 to share and need to save at least \$3.20 to get back home, do they have any money to spend after eating? How much?

4. Bethany and Andrey want to go to the library. Andrey lives 10 blocks away from the library. Bethany will be walking from the park, which is 7 blocks away from Andrey's house. If Bethany stops first to pick up Andrey, how many total blocks will she walk to the library? How many more blocks will she walk than Andrey?

5. Samantha's mother has given her 2 hours to play any of her 4 favorite video games. It will take her 30 minutes to play one game and 45 minutes to play another. The third game takes 20 minutes to play and the fourth game takes one hour and 20 minutes. List three different combinations of games Samantha can play completely in the amount of time her mother has given her.

Skills Practice*Problem-Solving Strategy***Solve. Use the *work backward* strategy.**

1. There are 4 rows of seats in the first-class part of a plane. There is a business-class part of the same plane. If there are 4 seats in each row and 40 seats on the entire plane, how many rows of seats are there in the business-class section?

2. Mr. and Mrs. Lopez take several members of the school's theater club to a show. Adult tickets cost \$9 and student tickets cost \$5. They spend \$38 on tickets. How many students did Mr. and Mrs. Lopez take?

3. Mr. and Mrs. Jefferson take their 3 children to a Revolutionary War fort. Tickets cost \$7 for adults and \$5 for children. How much do the Jeffersons spend?

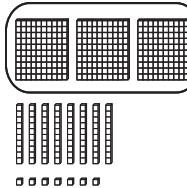
4. Nick buys 6 packs of postcards and 2 packs of souvenir photos. A pack of postcards costs \$4. Nick spends \$34. How much does each pack of photos cost?

5. Mr. Hong takes a bus to the city. He arrives at a business meeting at 9:00 A.M. The bus ride takes 30 minutes. Then he takes a subway to get to a meeting. The subway ride takes 15 minutes. What time did he leave his house?

6. Eight passengers each took 2 suitcases on a plane. 32 passengers each took one suitcase. How many suitcases did the passengers take on the plane in all?

15-5**Reteach****3NS2.5, 3NS2.3***Three-Digit Quotients***Find $387 \div 3$.****Step 1**

Decide if there are enough hundreds for 3 groups.

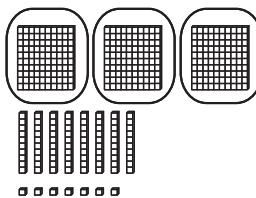


$3 = 3$
There are enough hundreds.

$\boxed{ }$
3 $\overline{)387}$ ← There are enough hundreds, so the first digit goes in the hundreds place.

Step 2

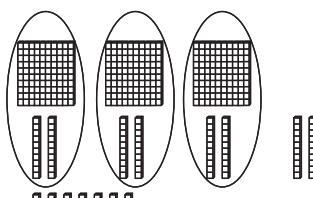
Divide the hundreds into 3 groups.



1 ← 1 hundred in each group
 $\underline{- 3 \downarrow}$ ← 3 hundreds used
08 ← no hundreds left
 Bring down the tens.

Step 3

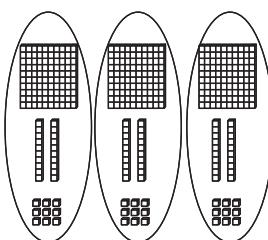
Divide the tens into 3 groups



12 ← 2 tens in each group
 $\underline{- 3 \downarrow}$
08
 $\underline{- 6 \downarrow}$ ← 6 tens used
2 ← 2 tens left

Step 4

Regroup 2 tens 7 ones as 27 ones. Divide the ones into 3 groups.



129 ← 9 ones in each group
 $\underline{- 3 \downarrow}$
08
 $\underline{- 6 \downarrow}$
27
 $\underline{- 27 \downarrow}$ ← 27 ones used
0 ← no ones left

So, $387 \div 3 = 129$.

Divide. Check your answers.

1. $864 \div 4 =$ _____

2. $987 \div 3 =$ _____

3. $573 \div 3 =$ _____

4. $833 \div 7 =$ _____

5. $725 \div 5 =$ _____

6. $288 \div 2 =$ _____

Skills Practice*Three-Digit Quotients***Divide. Check your answers.**

1. $4\overline{)456}$

2. $7\overline{)385}$

3. $6\overline{)294}$

4. $6\overline{)528}$

5. $3\overline{)681}$

6. $5\overline{)290}$

7. $2\overline{)578}$

8. $3\overline{)261}$

9. $5\overline{)745}$

10. $4\overline{)868}$

11. $9\overline{)252}$

12. $7\overline{)406}$

13. $4\overline{)368}$

14. $9\overline{)288}$

15. $3\overline{)573}$

16. $6\overline{)186}$

17. $7\overline{)504}$

18. $8\overline{)576}$

19. $2\overline{)924}$

20. $6\overline{)834}$

21. $875 \div 7 =$ _____ 22. $528 \div 3 =$ _____ 23. $385 \div 5 =$ _____

24. $974 \div 2 =$ _____ 25. $852 \div 3 =$ _____ 26. $429 \div 8 =$ _____

27. $632 \div 8 =$ _____ 28. $204 \div 3 =$ _____ 29. $420 \div 5 =$ _____

30. $896 \div 2 =$ _____ 31. $476 \div 4 =$ _____ 32. $234 \div 2 =$ _____

Solve.

33. Betsy and her brother split the cost of lemons for their lemonade stand. They spent a total of 298¢. How much did each pay?

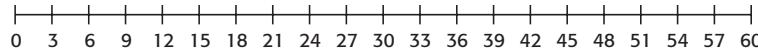
34. The lemonade container holds 128 ounces. How many 8-ounce glasses of lemonade does the container hold?

*Problem-Solving Investigation***Choose the Best Strategy**

Justina is planting a row of shrubs in her backyard. She places shrubs 3 feet apart over a distance of 20 yards. She places the first shrub 3 feet from the edge of the yard. How many shrubs does Justina plant?

Step 1 Understand	<p>Be sure you understand the problem. Read carefully.</p> <p>What facts do you know?</p> <ul style="list-style-type: none"> • The shrubs are spread over a distance of _____ yards. • Justina begins 3 feet from the edge of the yard and places shrubs _____ feet apart. <p>What do you need to find?</p> <ul style="list-style-type: none"> • You need to find the number of feet in _____ yards. • You need to find how many _____.
Step 2 Plan <ul style="list-style-type: none"> • Logical Reasoning • Draw a Picture or Diagram • Act It Out • Make a Table or List • Work Backward 	<p>Make a plan. Choose a strategy.</p> <p>To find the answer, you can draw a diagram. Find the number of feet in 20 yards. Show a distance that is that many feet long. Count by 3s to see how many shrubs Justina uses if they are placed 3 feet apart.</p> <p>To find the answer, you can also write an equation. All the shrubs are the same distance apart. Use division to find how many shrubs Justina uses.</p>

Problem-Solving Investigation (continued)

Step 3 Solve	<p>Carry out your plan.</p> <p>How many feet are in 20 yards? $1 \text{ yard} = 3 \text{ feet}$ $20 \times 3 = 60$</p> <p>Draw a diagram. Show a 60-foot distance. Count by 3s, adding tick marks as shown.</p>  <p>Count the tick marks from 3 to 60. Justina uses _____ shrubs.</p>
Step 4 Check	<p>Is the solution reasonable?</p> <p>Reread the problem.</p> <p>Does your answer make sense? Yes No</p> <p>Which method do you prefer? Explain.</p> <p>_____</p> <p>_____</p>

Use any strategy shown below to solve.

- Make an organized list
- Draw a picture
- Act it out
- Use logical reasoning
- Work backward

1. There are 900 seconds in 15 minutes. How many seconds are in one hour?

2. Adelaide's parents are having a dinner party. There are 112 guests invited. Should 5, 6, or 8 guests sit at each table so that each table has the same number of guests?

*Problem-Solving Investigation***Use any strategy shown below to solve.**

- Make an organized list
- Draw a picture
- Act it out
- Use logical reasoning
- Work backward

1. On Peapack's Park Day, volunteers work in the park. One volunteer has 6 boxes of plants. There are 12 plants in each box. If the volunteer puts the plants in rows of 9, how many rows can he make?

2. Peapack's town square is surrounded by 64 trees. The same number of trees are on each of the 4 sides. The trees on each side are divided into 2 equal rows. How many trees are in each row?

3. Bonnle takes a large photo. She makes a square frame for the photo. Each side of the frame is 27 inches long. How many inches around is the frame?

4. Some volunteers are building picnic tables. The tables can seat 4 adults or 6 children. How many adults can sit at 6 tables? How many children?

5. The benches at the park can seat a total of 95 people. Each bench can seat 5 people. How many benches are at the park?

6. The third-grade class makes a mural for the train station. The mural is 30 feet long. The mural is divided into 6 equal sections. How many feet long is each section?

7. Write a problem that you could solve by drawing a diagram or by writing a division sentence. Share it with others.

Divide Money

To divide money amounts, divide the same way you divide whole numbers.

Find $\$9.56 \div 4$.

Step 1 Divide the dollars.

$$\begin{array}{r} 2 \\ 4 \overline{) \$9.56} \\ -8 \\ \hline 1 \end{array}$$

Divide $9 \div 4$.
Multiply 4×2 .
Subtract $9 - 8$.
Compare $1 < 4$.

Step 2 Divide the dimes.

$$\begin{array}{r} 23 \\ 4 \overline{) \$9.56} \\ -8 \\ \hline 15 \\ -12 \\ \hline 3 \end{array}$$

Divide $15 \div 4$.
Multiply 4×3 .
Subtract $15 - 12$.
Compare $3 < 4$.

Step 3 Divide the pennies.

$$\begin{array}{r} 239 \\ 4 \overline{) \$9.56} \\ -8 \\ \hline 15 \\ -12 \\ \hline 36 \\ -36 \\ \hline 0 \end{array}$$

Divide $36 \div 4$.
Multiply 4×9 .
Subtract $36 - 36$.
Compare $0 < 4$.

Step 4 Write the dollar sign and decimal point in the quotient.

$$\begin{array}{r} \$2.39 \\ 4 \overline{) \$9.56} \\ -8 \\ \hline 15 \\ -12 \\ \hline 36 \\ -36 \\ \hline 0 \end{array}$$

Separate the dollars and cents with a decimal point.

Check

$$\begin{array}{r} \$2.39 \\ \times 4 \\ \hline \$9.56 \end{array}$$

product = dividend
The answer is correct.

Divide. Check your answer.

1. $4 \overline{) \$6.20} \quad$

2. $7 \overline{) \$8.61} \quad$

3. $3 \overline{) \$6.93} \quad$

4. $5 \overline{) \$4.75} \quad$

5. $4 \overline{) \$3.92} \quad$

6. $9 \overline{) \$17.28} \quad$

Skills Practice*Divide Money***Divide. Check your answer.**

1. $\$4.50 \div 5 =$

2. $\$8.32 \div 4 =$

3. $\$3.50 \div 5 =$

4. $\$9.27 \div 3 =$

Find the unit cost.

5. 4 shirts for \$20

6. 10 notebooks for \$5

7. 3 cans of soup for \$4.50

8. 4 bottles of water for \$2

For Exercises 9–10 refer to the chart.

9. Amy bought 3 of one item and spent \$21. What did she buy?

10. Jonathan bought 4 of one item and spent \$12. What did he buy?

Seaside Gift Shop	
Conch Shell	\$3
T-shirt	\$18
Beach Umbrella	\$10
Bag of Shells	\$7
Disposable Camera	\$9