California Mathematics 4
Chapter 8
Resource Masters

Includes:

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- Student-Built Glossary
- Family Letter
- Anticipation Guide
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- Chapter 8 Assessment Line-up Answer Keys

All Answers Included
Teacher’s Guide to Using the
Chapter 8 Resource Masters

The Chapter 8 Resource Masters includes the core materials needed for Chapter 8. These materials include worksheets, extensions, and assessment options. The answers for these pages appear at the back of this booklet.

All of the materials found in this booklet are included for viewing and printing on the TeacherWorks Plus ™ CD-ROM.

Chapter Resources

**Graphic Organizer** (page 1) This master is a tool designed to assist students with comprehension of grade-level concepts. You can use this graphic organizer in coordination with the appropriate lesson. While the content and layout of these tools vary, their goal is to assist students by providing a visual representation from which they can learn new concepts.

**Student Glossary** (page 2) This master is a study tool that presents the key vocabulary terms from the chapter. You may suggest that students highlight or star the terms they do not understand. Give this list to students before beginning Lesson 8-1. Remind them to add these pages to their mathematics study notebooks.

**Anticipation Guide** (page 6) This master is a survey designed for use before beginning the chapter. You can use this survey to highlight what students may or may not know about the concepts in the chapter. If feasible, interview students in small groups, asking them the interview questions in the guide. There is space for recording how well students answer the questions before they complete the chapter. You may find it helpful to interview students a second time, after completing the chapter, to determine their progress.

**Game** (page 7) A game is provided to reinforce chapter concepts and may be used at appropriate times throughout the chapter.

Resources for Lessons

**Reteach** Each lesson has an associated Reteach worksheet. In general, the Reteach worksheet focuses on the same lesson content but uses a different approach, learning style, or modality than that used in the Student Edition. The Reteach worksheet closes with computational practice of the concept.

**Skills Practice** The Skills Practice worksheet for each lesson focuses on the computational aspect of the lesson. The Skills Practice worksheet may be helpful in providing additional practice of the skill taught in the lesson. It also contains word problems that cover the skill. Spaces for students’ answers are provided on the worksheet.

**Homework Practice** The Homework Practice worksheet provides an opportunity for additional computational practice. The Homework Practice worksheet includes word problems that address the skill taught in the lesson. Spaces for students’ answers are provided on the worksheet.

**Problem-Solving Practice** The Problem-Solving Practice worksheet presents additional reinforcement in solving word problems that apply both the concepts of the lesson and some review concepts.

**Enrich** The Enrich worksheet presents activities that extend the concepts of the lesson or offer a historical or multicultural look at the lesson’s concepts. Some Enrich materials are designed to widen students’ perspectives on the mathematics they are learning.

Resources for Problem-Solving Lessons

In recognition of the importance of problem-solving strategies, worksheets for problem-solving lessons follow a slightly different format. For problem-solving lessons, a two-page Reteach worksheet offers a complete model for choosing a problem-solving strategy. For each Problem-Solving Strategy lesson, Reteach and Homework
Practice worksheets offer reinforcement of the strategy taught in the Student Edition lesson. In contrast, the Problem-Solving Investigation worksheets include a model strategy on the Reteach worksheets and provide problems requiring several alternate strategies on practice worksheets.

**Assessment Options**

The assessment masters in the Chapter 8 Resource Masters offer a wide variety of assessment tools for monitoring progress as well as final assessment.

**Individual Progress Checklist** This checklist explains the chapter’s goals or objectives. Teachers can record whether a student’s mastery of each objective is beginning (B), developing (D), or mastered (M). The checklist includes space to record notes to parents as well as other pertinent observations.

**Chapter Diagnostic Assessment** This one-page test assesses students’ grasp of skills that are needed for success in the chapter.

**Chapter Pretest** This one-page quick check of the chapter’s concepts is useful for determining pacing. Performance on the pretest can help you determine which concepts can be covered quickly and which specific concepts may need additional time.

**Quizzes** Three free-response quizzes offer quick assessment opportunities at appropriate intervals in the chapter.

**Mid-Chapter Review** This one-page chapter test provides an option to assess the first half of the chapter. It includes both multiple-choice and free-response questions.

**Vocabulary Test** This one-page test focuses on chapter vocabulary. It is suitable for all students. It includes a list of vocabulary words and questions to assess students’ knowledge of the words.

**Oral Assessment** This two-page test consists of one page for teacher directions and questions and a second page for recording responses. Although this assessment is designed to be used with all students, the interview format focuses on assessing chapter content assimilated by ELL students. The variety of approaches includes solving problems using manipulatives as well as pencil and paper.

**Chapter Project Rubric** This one-page rubric is designed for use in assessing the chapter project. You may want to distribute copies of the rubric when you assign the project and use the rubric to record each student’s chapter project score.

**Foldables Rubric** This one-page rubric is designed to assess the foldables graphic organizer. The rubric is written to the students, telling them what you will be looking for as you evaluate their completed Foldable.

**Leveled Chapter Tests**

- **Form 1** assesses basic chapter concepts through multiple-choice questions and is designed for use with on-level students.
- **Form 2A** is designed for on-level students and is primarily for those who may have missed the Form 1 test. It may be used as a retest for students who received additional instruction following the Form 1 test.
- **Form 2B** is designed for students with a below-level command of the English language.
- **Form 2C** is a free-response test designed for on-level students.
- **Form 2D** is written for students with a below-level command of the English language.
- **Form 3** is a free-response test written for above-level students.

**Student Recording Sheet** This one-page recording sheet is for the standardized test in the Student Edition.

**Cumulative Standardized Test Practice** This three-page test, aimed at on-level students, offers multiple-choice questions and free-response questions.

**Answers**

The answers for the Anticipation Guide and Lesson Resources are provided as reduced pages with answers appearing in black. Full size line-up answer keys are provided for the Assessment Masters.
Use this graphic organizer to take notes on **Chapter 8: Multiply by Two-Digit Numbers**. Fill in the missing information.

<table>
<thead>
<tr>
<th>Vocabulary Term</th>
<th>Definition</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distributive Property of Multiplication</strong></td>
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<td><strong>Estimate</strong></td>
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<tr>
<td><strong>Multiplication</strong></td>
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<tr>
<td><strong>Product</strong></td>
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<td><strong>Round</strong></td>
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</tbody>
</table>
Student-Built Glossary

This is an alphabetical list of new vocabulary terms you will learn in Chapter 8: Multiply by Two-Digit Numbers. As you study the chapter, complete each term’s definition or description. Remember to add the page number where you found the term. Add this page to your math study notebook to review vocabulary at the end of the chapter.

<table>
<thead>
<tr>
<th>Vocabulary Term</th>
<th>Found on Page</th>
<th>Definition/Description/Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributive Property of Multiplication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>estimate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>multiplication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>product</td>
<td></td>
<td></td>
</tr>
<tr>
<td>round</td>
<td></td>
<td></td>
</tr>
<tr>
<td>whole number</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dear Family,

Today my class started Chapter 8: Multiply by Two-Digit Numbers. I will be learning to multiply by multiples of 10 and two-digit numbers. I will also be learning to use rounding to estimate products. Here are my vocabulary words and an activity that we can do together.

Love, ________________

Key Vocabulary

**Distributive Property of Multiplication** The property that states that to multiply a sum by a number, you can multiply each addend by the same number and add the products. Example:

\[ 4 \times (1 + 3) = (4 \times 1) + (4 \times 3) = 16. \]

**estimate** A number close to an exact value; an estimate indicates about how much. Example:

\[ 47 + 22 \text{ (estimate 50 + 20), about 70.} \]

**product** The answer to a multiplication problem. It also refers to expressing a number as a product of its factors. Example: \( 7 \times 2 = 14 \), 14 is the product.

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**Books to Read**

*Anno’s Mysterious Multiplying Jar*  
by Mitsumasa Anno

*Amanda Bean’s Amazing Dream*  
by Cindy Neuschwander

*One Hundred Hungry Ants*  
by Elinor Pinczes
Estimada familia:

Hoy mi clase comenzó el Capítulo 8: Multiplica por números de dos dígitos. Aprenderé a multiplicar por múltiplos de 10 y números de dos dígitos y también a usar el redondeo para estimar productos. A continuación, están mis palabras de vocabulario y una actividad que podemos hacer juntos.

Cariños, ________________

Vocabulario clave

Propiedad Distributiva de la Multiplicación Propiedad que establece que para multiplicar una suma por un número, se puede multiplicar cada sumando por el número y sumar los productos.

estimación Número cercano a un valor exacto. Una estimación indica aproximadamente cuánto.

producto Respuesta de un problema de multiplicación. También se refiere a la expresión de un número como el producto de sus factores. Ejemplo: $7 \times 2 = 14$, 14 es el producto.

Activity
Simulen que venden artículos en una tienda. Reúnan los siguientes objetos y rotúlenlos como corresponde: (1) libro, $10; (2) camisa, $15 y (3) portarretratos, $5.

Si un maestro quisiera comprar 10 libros, ¿cuánto costarían los libros? Si alguien quisiera comprar 3 camisas, ¿cuánto costarían las camisas? Si alguien quisiera comprar 2 portarretratos, ¿cuánto costarían los portarretratos?

Libros recomendados:

*Anno’s Mysterious Multiplying Jar* de Mitsumasa Anno

*Amanda Bean’s Amazing Dream* de Cindy Neuschwander

*One Hundred Hungry Ants* de Elinor Pinczes
# Anticipation Guide

## Multiply by Two-Digit Numbers

### STEP 1

**Before you begin Chapter 8**

- Read each statement.
- Decide whether you agree (A) or disagree (D) with the statement.
- Write A or D in the first column OR if you are not sure whether you agree or disagree, write NS (not sure).

<table>
<thead>
<tr>
<th>STEP 1 A, D, or NS</th>
<th>Statement</th>
<th>STEP 2 A or D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>When you multiply any number by a multiple of 10, the digit in the ones place of the product is always 5.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>$10 \times 10 = 100$.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>$5 \times 10 = 55$.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>The method used to multiply whole numbers cannot be used to multiply money.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>The word <em>exactly</em> tells you to estimate.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>It is impossible to tell whether an estimate is more or less than the actual product.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>If I have 5 coins that add up to 5¢, then all the coins are nickels.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>If I have 2 coins that add up to 10¢, then all the coins are dimes.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>In the Distributive Property of Multiplication, greater numbers are broken down so that they are easier to compute with.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>809 rounded to the nearest hundred is 900.</td>
<td></td>
</tr>
</tbody>
</table>

### STEP 2

**After you complete Chapter 8**

- Reread each statement and complete the last column by entering an A (agree) or a D (disagree).
- Did any of your opinions about the statements change from the first column?
- For those statements that you mark with a D, use a separate sheet of paper to explain why you disagree. Use examples, if possible.
Chapter 8 Game

A Multiplication Race

Ready

You will need:
Number cubes (2 per player)
Paper and pencils

Set

Give each player a pair of number cubes, a sheet of paper, and a pencil.

GO!

1. Each player tosses the pair of number cubes twice and forms two 2-digit numbers from the numbers tossed.

2. The player multiplies his or her numbers together and records the product.

3. Players follow steps 1 and 2 again, adding the products from the first and second round together.

4. Players repeat steps 1–3 until one reaches a sum of 10,000 and wins the game.
Find $355 \times 40$.

**Step 1**
Think in terms of hundreds, tens, and ones. $355 = 3 \text{ hundreds} + 5 \text{ tens} + 5 \text{ ones}$.

**Step 2**
Multiply the ones.

$355$
$\uparrow$
\[ \times 40 \] $\begin{array}{c}
0 \\
0
\end{array}$

$0 \times (\text{any number})$ $355 = 0$

**Step 3**
Multiply the tens $\times$ the ones.

$2$
$355$
$\uparrow$
\[ \times 40 \] $4 \times 5 \text{ ones} = 20 \text{ tens}$

$00$ Add the regrouped 2 tens.

**Step 4**
Multiply the tens $\times$ the tens.

$22$
$355$
$\uparrow$
\[ \times 40 \] $4 \times 5 \text{ tens} = 20 \text{ tens} + 2 \text{ tens}$

$200$ Add the regrouped 200.

**Step 5**
Multiply the tens $\times$ the hundreds.

$22$
$355$
$\uparrow$
\[ \times 40 \] $4 \times 3 \text{ hundreds} = 12 \text{ hundreds} + 14,200$ 2 hundreds

**Multiply.**

1. $44 \times 20 = \underline{880}$
2. $658 \times 30 = \underline{19,740}$
3. $57 \times 10 = \underline{570}$
4. $369 \times 50 = \underline{18,450}$
Skills Practice

Multiply by Tens

Multiply.

1. 12 \times 30 = \underline{360} \hspace{1cm} 15. 80 \times 70 = \underline{5600}
2. 21 \times 40 = \underline{840} \hspace{1cm} 16. 26 \times 40 = \underline{1040}
3. 14 \times 60 = \underline{840} \hspace{1cm} 17. 17 \times 80 = \underline{1360}
4. 31 \times 70 = \underline{2170} \hspace{1cm} 18. 135 \times 50 = \underline{6750}
5. 25 \times 50 = \underline{1250} \hspace{1cm} 19. 207 \times 60 = \underline{12420}
6. 24 \times 40 = \underline{960} \hspace{1cm} 20. 399 \times 50 = \underline{19950}
7. 61 \times 30 = \underline{1830} \hspace{1cm} 21. 756 \times 30 = \underline{22680}
8. 48 \times 20 = \underline{960} \hspace{1cm} 22. 375 \times 20 = \underline{7500}
9. 19 \times 30 = \underline{570} \hspace{1cm} 23. 409 \times 40 = \underline{16360}
10. 65 \times 40 = \underline{2600} \hspace{1cm} 24. 490 \times 70 = \underline{34300}
11. 48 \times 40 = \underline{1920} \hspace{1cm} 25. 967 \times 10 = \underline{9670}
12. 14 \times 50 = \underline{700} \hspace{1cm} 26. 975 \times 80 = \underline{78000}
13. 49 \times 70 = \underline{3430} \hspace{1cm} 27. 549 \times 50 = \underline{27450}
14. 42 \times 90 = \underline{3780} \hspace{1cm} 28. 105 \times 30 = \underline{3150}

Solve.

29. Classroom chairs cost $39. How much will it cost to buy 30 chairs?

\underline{\text{\$1170}}

30. A computer costs $986. How much will it cost to buy 20 computers?

\underline{\text{\$19720}}
Homework Practice

Multiply by Tens

Multiply.

1. \(51 \times 30 = \) 
2. \(712 \times 30 = \)
3. \(39 \times 80 = \)
4. \(116 \times 10 = \)
5. \(67 \times 20 = \)
6. \(185 \times 80 = \)
7. \(325 \times 60 = \)
8. \(490 \times 90 = \)
9. \(608 \times 40 = \)
10. \(111 \times 70 = \)
11. \(999 \times 10 = \)
12. \(740 \times 50 = \)

Solve.

13. There are 40 rows of lockers. There are 12 lockers in each row.
   How many lockers are there? 

14. Pablo found out that every classroom has 34 desks. There are 30 classrooms. How many desks are in the school?

Spiral Review

Multiply. (Lesson 7–7)

15. \(604 \times 3 = \)
16. \(6,005 \times 8 = \)
17. \(3,100 \times 9 = \)

Solve.

18. Mr. Sims printed 303 museum trip notices for the students in each grade. The museum trip was for 3 grades. How many notices did he print?

19. It costs $5 for each student to enter the museum. How much money did Mr. Sims need for 909 students to enter the museum?

20. 600 students from another school joined the 909 students who were with Mr. Sims. The museum provided a study guide for each student. The study guides cost the museum $2 each to print. How much did it cost the museum to provide study guides for all of the students?
Solve.

1. Teams of 16 students are helping the town clean the park. There are 20 teams in all. How many students are cleaning the park?

2. Students are going on a field trip in 10 buses. Each bus carries 35 students. How many students can go on the field trip?

3. Mr. Parker arranged 1 van for every 12 students to travel to the zoo. A total of 40 vans were needed. How many students went on the trip?

4. It cost $14 to buy tickets for each student to go to the petting zoo. Mr. Parker bought tickets for 30 students. How much did the tickets cost?

5. The 32 caretakers make sure that all of the animals are checked on each day at the zoo. How many animals are at the zoo if each caretaker checks on 30 animals?

6. 27 students run in a charity race to raise money for the zoo. Thirteen of the students each raise $20. The rest of the students each raise $30. How much did the students raise in all?
One multiplication problem appears in each four-square below. Find its product. Then fill up the four-square by writing three more problems that have the same product. Use as many multiples of ten as you can.

<table>
<thead>
<tr>
<th>Problem 1</th>
<th>Problem 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>$30 \times 500 = $</td>
<td>$90 \times 6,000 = $</td>
</tr>
<tr>
<td>$350 \times 70 = $</td>
<td>$64 \times 800 = $</td>
</tr>
</tbody>
</table>
You can round to estimate products. Round each factor to its greatest place. Then multiply using patterns with zeros.

Estimate $42 \times 59$.  
$42 \rightarrow 40$  
$\times 59 \rightarrow \times 60$  
$2,400 \quad 2 \text{ zeros}$

Estimate $74 \times 229$.  
$229 \rightarrow 200$  
$\times 74 \rightarrow \times 70$  
$14,000 \quad 3 \text{ zeros}$

Estimate each product by rounding.

1. $54 \rightarrow 
   \times 19 \rightarrow _______

2. $29 \rightarrow 
   \times 32 \rightarrow _______

3. $788 \rightarrow 
   \times 51 \rightarrow _______

Estimate each product.

4. $37 \times 49$ _________________
5. $23 \times 51$ _________________
6. $69 \times 19$ _________________
7. $26 \times 72$ _________________
8. $19 \times 315$ _________________
9. $85 \times 263$ _________________
10. $72 \times 803$ _________________
11. $48 \times 156$ _________________
12. $92 \times 228$ _________________
Estimate Products

Estimate each product.

1. $49 \times 59$ 
2. $85 \times 211$

3. $55 \times 65$ 
4. $71 \times 218$

5. $41 \times 52$ 
6. $19 \times 602$

7. $18 \times 29$ 
8. $29 \times 907$

9. $98 \times 402$ 
10. $82 \times 310$

11. $71 \times 874$ 
12. $37 \times 196$

13. $61 \times $216 
14. $42 \times 284$

15. $81 \times 350$ 
16. $480 \times 16$

17. $42 \times 605$ 
18. $230 \times 21$

19. $23 \times 999$ 
20. $890 \times 36$

Solve by estimating each product.

21. The price of a bus ticket is $58. About how much will tickets cost for a group of 62 passengers? 

22. An airline ticket costs $375. About how much will tickets cost for a group of 25 people? 

23. Michael averages 12 points in each football game. About how many points will he score in 12 games? 

24. Rachel creates 14 paintings a month. About how many paintings will she create in 2 years?
Estimate each product.

1. $37 \times 22$ 
2. $878 \times 41$
3. $49 \times 16$ 
4. $250 \times 12$
5. $68 \times 22$ 
6. $688 \times 19$
7. $36 \times 81$ 
8. $563 \times 29$
9. $714 \times 11$ 
10. $141 \times 78$

Estimate to solve.

11. The price of a bus ticket is $39. About how much will tickets cost for a group of 58 passengers?

12. An airline ticket costs $285. About how much will tickets cost for a group of 37 people?

Spiral Review

Multiply. (Lesson 8–1)

13. $35 \times 10$
14. $723 \times 20$
15. $58 \times 40$
16. $448 \times 40$
17. $89 \times 30$
18. $58 \times 60$
19. $54 \times 80$
20. $98 \times 80$
21. $43 \times 40$
22. $51 \times 50$
23. $45 \times 80$
24. $663 \times 30$
25. $99 \times 90$
26. $39 \times 70$
27. $75 \times 50$
28. $87 \times 20$
29. $658 \times 50$
30. $52 \times 60$
Solve.

1. Each of 32 classrooms has 4 computers. About how many computers are there in all?

2. A new keyboard for the computer costs $49. The school is buying 18 keyboards. About how much will they cost?

3. There are 42 times for students to work in the computer lab during one week. If 19 students can work in the computer lab at one time, about how many students can work in the computer lab during one week?

4. The school is buying 28 new computers for the computer lab. One computer costs $812. About how much will all of the computers cost?

5. The school district is buying laser printers for 62 schools. Each printer costs $898. About how much will all the printers cost?

6. The school district is buying software for virus protection. Each software package costs $48. There are 685 computers all together in the district’s schools. About how much will the software cost?
Rounding is a good way to estimate products when you don’t need a precise answer. First estimate these products and use > or < to show which package weighs more. Then multiply to check your answers.

<table>
<thead>
<tr>
<th>Product 1</th>
<th>Product 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>37 tons</td>
<td>56 tons</td>
</tr>
<tr>
<td>× 42</td>
<td>× 21</td>
</tr>
<tr>
<td>______</td>
<td>______</td>
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<tr>
<td></td>
<td>______</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Product 1</th>
<th>Product 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>78 pounds</td>
<td>42 pounds</td>
</tr>
<tr>
<td>× 11</td>
<td>× 98</td>
</tr>
<tr>
<td>______</td>
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<td></td>
<td>______</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Product 1</th>
<th>Product 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>87 ounces</td>
<td>65 ounces</td>
</tr>
<tr>
<td>× 84</td>
<td>× 33</td>
</tr>
<tr>
<td>______</td>
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<td></td>
<td>______</td>
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<table>
<thead>
<tr>
<th>Product 1</th>
<th>Product 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>57 kilograms</td>
<td>84 kilograms</td>
</tr>
<tr>
<td>× 59</td>
<td>× 29</td>
</tr>
<tr>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td></td>
<td>______</td>
</tr>
</tbody>
</table>
Reteach

Problem-Solving Strategy

Yolan has 3 bills equaling $20. What combination of $1, $5, $10, $20, or $50 bills does he have?

<table>
<thead>
<tr>
<th>Understand</th>
<th>Be sure you understand the problem.</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do you know?</td>
<td></td>
</tr>
<tr>
<td>• Yolan has 3 bills.</td>
<td></td>
</tr>
<tr>
<td>• The value of those bills is $20.</td>
<td></td>
</tr>
<tr>
<td>What do you need to find?</td>
<td></td>
</tr>
<tr>
<td>• You need to find what bills Yolan has.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plan</th>
<th>Make a plan.</th>
</tr>
</thead>
<tbody>
<tr>
<td>You can act out the problem using play money.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solve</th>
<th>Use play money to act out different combinations of $20.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut out pieces of paper to represent different amounts of money.</td>
<td></td>
</tr>
<tr>
<td>Try out different possibilities with the bills.</td>
<td></td>
</tr>
<tr>
<td>He could have two $5 bills and one $10 bill.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check</th>
<th>Is the solution reasonable?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reread the problem.</td>
<td></td>
</tr>
<tr>
<td>Check your answer.</td>
<td></td>
</tr>
</tbody>
</table>

Solve. Use the act it out strategy.

1. Rod has 20 coins having the value of $6. What coins does he have?

2. List 3 combinations to create a value of 64 cents.

3. Angie is 8 years old. She is one-fifth her father’s age. How old is her father?
4. You decide to start a business making T-shirts with Joe, Frank, and Eddie. In one day Joe created 6 more than Frank. Frank created 4 less than Eddie. On that day, the total number of T-shirts the boys created was 22. How many shirts did each boy create?

5. The boys have $100 to spend. They have a total of four bills. They are either $5, $10, $20, or $50 bills. What combination of bills do they have?

6. There are 10 people interested in buying shirts. All 10 people unfold and inspect the 22 shirts. After each person unfolds a shirt, Frank folded it again. How many times did Frank refold shirts?

7. After selling shirts, the boys had $500 in cash. They had a total of 19 bills. What combination of bills do they have?

8. Eddie figured out that he could cut a large square of fabric into 4 small squares, and each small square was enough for 1 T-shirt. In the end, the boys ruined 2 shirts and had 22 good ones. How many large squares of fabric did they start with?

9. Leah is 13 years older than Jillian. Jillian is 2 years younger than Steve. If Steve is 11, how old is Leah?
Skills Practice

Problem-Solving Strategy

Solve. Use the act it out strategy.

1. Ann is 50. Ann is twice the age of her daughter, Cindy. Cindy’s daughter is 20 years younger than her mother. How old is Cindy’s daughter?

2. Jane is 64 years old and 4 years older than 3 times Linda’s age. How old is Linda?

3. Jerry has 12 bills equaling $100. ($5, $10, $20, $50) What combination of bills does he have?

4. Fred has 34 coins equaling $3. What combination of coins does he have?

5. The Gomez family goes to a symphony concert. They buy 1 adult ticket at $15.75 and 3 youth tickets at $9.98. How much does the Gomez family spend for tickets?

6. There are 30 students in the lunch line. On the shelf there are an equal number of 5 different kinds of drinks. If there are 30 drinks on the shelf, how many people will have the same kind of drink?
Solve. Use the act it out strategy.

1. The Diving Club offers 4 beginning diving classes each day. Each class has room for 6 people. How many people can take classes in 30 days? ________________________________

2. A fishing guide charges $25 per hour. He works 6 hours per day for 5 days. How much money does the guide earn? __________

3. During one week, 5 sailboats are rented for a total of 16 hours each. The rental cost is $25 per hour. Altogether, how much is paid for these rentals? ________________________________

4. The aquarium charges $12 admission and $6 for a tour. A group of 20 people goes to the aquarium and takes the tour. How much money does the group spend? ________________________________

5. Amanda rents a canoe and a life preserver from 2:00 P.M. to 5:00 P.M. A canoe costs $12 per hour. A life preserver costs $2 per hour. How much does Amanda spend? _________________

6. Jenny rented a rowboat for 2 hours in the morning. After lunch, she rented another rowboat for 3 hours. For how many minutes did she rent the boat? _________________

Spiral Review

Estimate each product. (Lesson 8–2)

7. 26 × 3 _________

8. 478 × 41 _________

9. 23 × 7 _________

10. 850 × 12 _________

11. 78 × 32 _________

12. 618 × 19 _________

13. 96 × 11 _________

14. 275 × 29 _________

15. 211 × 5 _________

16. 325 × 52 _________

17. Circle all of the numbers on this page that are multiples of tens.
Almost 2,000 kids went to Camp Guthrie last summer—884 boys and 965 girls. Most of them bought clothes at the Guthrie Gift Shop.

Write three questions you can ask and answer by multiplying.

1. ____________________________
   ____________________________
   ____________________________

2. ____________________________
   ____________________________
   ____________________________

3. ____________________________
   ____________________________
   ____________________________

Add 3 items to the Guthrie Gift Shop price list. Create two more questions that you can ask and answer by multiplying. Be sure to use the new items in your questions!

4. ____________________________
   ____________________________
   ____________________________

5. ____________________________
   ____________________________
   ____________________________

Trade with a partner to check each other’s work.
Find $36 \times 26$.

Estimate: $40 \times 30 = 1,200$

**Step 1** Multiply the ones. Regroup if necessary. Cross out the amount you regroup when you add it.

\[
\begin{array}{c}
3 \\
\downarrow \\
3 \ 6 \\
\times \\
2 \ 6 \\
\hline
2 \ 1 \ 6
\end{array}
\]

**Step 2** Multiply the tens. Regroup if necessary. Cross out the amount you regroup when you add it. Remember, a zero is in the ones place when you multiply the tens.

\[
\begin{array}{c}
1 \\
\downarrow \\
3 \ 6 \\
\times \\
2 \ 6 \\
\hline
2 \ 1 \ 6 \ 6 \\
\downarrow \\
7 \ 2 \ 0 \ 20 \times \ 3 \ 6
\end{array}
\]

**Step 3** Add.

\[
\begin{array}{c}
1 \\
\downarrow \\
3 \ 6 \\
\times \\
2 \ 6 \\
\hline
2 \ 1 \ 6 \ 6 \\
\downarrow \\
7 \ 2 \ 0 \ 20 \times \ 3 \ 6 \\
\hline
9 \ 3 \ 6
\end{array}
\]

**Multiply.**

1. $14 \times 22$ _____  
2. $30 \times 13$ _____
3. $42 \times 17$ _____  
4. $30 \times 24$ _____

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Multiply Two-Digit Numbers

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>36</td>
<td>× 12</td>
</tr>
<tr>
<td>4.</td>
<td>27</td>
<td>× 41</td>
</tr>
<tr>
<td>7.</td>
<td>38</td>
<td>× 14</td>
</tr>
<tr>
<td>10.</td>
<td>23</td>
<td>× 22</td>
</tr>
<tr>
<td>13.</td>
<td>49</td>
<td>× 13</td>
</tr>
<tr>
<td>16.</td>
<td>47</td>
<td>× 34</td>
</tr>
<tr>
<td>19.</td>
<td>46</td>
<td>× 14</td>
</tr>
<tr>
<td>22.</td>
<td>17</td>
<td>× 25</td>
</tr>
</tbody>
</table>
**Homework Practice**  
**Multiply Two-Digit Numbers**

**Multiply.**

1. \[26 \times 35\]
2. \[\$46 \times 35\]
3. \[79 \times 73\]
4. \[73 \times 51\]
5. \[59 \times 47\]
6. \[94 \times 61\]
7. \[44 \times 87\]
8. \[77 \times 22\]
9. \[\$63 \times 58\]
10. \[18 \times 92 = \_\_\_\_\_\_\_\_\_\_\_\_\_\]
11. \[74 \times 33 = \_\_\_\_\_\_\_\_\_\_\_\_\_\]
12. \[77 \times 94 = \_\_\_\_\_\_\_\_\_\_\_\_\_\]
13. \[28 \times 19 = \_\_\_\_\_\_\_\_\_\_\_\_\_\]
14. \[48 \times 26 = \_\_\_\_\_\_\_\_\_\_\_\_\_\]
15. \[88 \times 62 = \_\_\_\_\_\_\_\_\_\_\_\_\_\]
16. \[86 \times 43 = \_\_\_\_\_\_\_\_\_\_\_\_\_\]
17. \[31 \times \$18 = \_\_\_\_\_\_\_\_\_\_\_\_\_\]
18. \[27 \times 34 = \_\_\_\_\_\_\_\_\_\_\_\_\_\]

**Spiral Review**

Solve. (Lesson 8–3)

19. George had 3 fewer basketball cards yesterday than he does today. Yesterday he had 9 basketball cards. How many basketball cards does George have today? __________

20. Judy, Lakesha, and Tina each like a different color, either red, green, or blue. Judy likes green. Tina does not like blue. What color does Lakesha like? ______
Problem-Solving Practice

Multiply Two-Digit Numbers

Solve.

1. There are 15 students in each school club. There are 20 clubs in all. How many students are in all of the clubs? Multiply. Tell which method you used.

2. There are 15 students in the art club. By the end of the school year, each student had made 23 pictures. How many pictures did the students make in all? Multiply. Tell which method you used.

3. The fourth-grade students at Tremont School receive a ribbon if they read 50 books during the school year. There are 69 ribbons given out at the end of the year. How many books did the students read in all? Multiply. Tell which method you used.

4. There are 27 students in Mr. Jacob’s class. By the end of the school year, each student will have completed 72 tasks on the class schedule. How many tasks will have been completed? Multiply. Tell which method you used.

5. The town’s camera store bought 98 cameras for school photography clubs to use. Each camera cost $57. How much did the cameras cost in all? Multiply. Tell which method you used.

6. There are 35 students in the photography club at Columbus School. Each student was given enough rolls of film to take 72 photos. How many photos did the students take in all? Multiply. Tell which method you used.
**Enrich**

*Fill the Grid*

Use a number cube to roll the top two numbers for each multiplication problem in the grid. Trade with a partner to check each other’s work.

<table>
<thead>
<tr>
<th>× 14</th>
<th>× 35</th>
<th>× 62</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>× 53</td>
<td>× 89</td>
<td>× 71</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>× 27</td>
<td>× 94</td>
<td>× 56</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Reteach

Multiply Three-Digit Numbers by Two-Digit Numbers

Find $411 \times 12$.  Estimate: $400 \times 10 = 4,000$

**Step 1  Multiply the ones.** $411 \times 2$

\[
\begin{array}{c}
411 \\
\times 12 \\
\hline
822 \\
\end{array}
\]

**Step 2  Multiply the tens.** $411 \times 10$
Remember, a zero is in the ones place when you multiply the tens.

\[
\begin{array}{c}
411 \\
\times 12 \\
\hline
822 \\
\hline
4110 \\
\end{array}
\]

**Step 3  Add the products.** $822 + 4110$

\[
\begin{array}{c}
411 \\
\times 12 \\
\hline
822 \\
\hline
4110 \\
\hline
4,932 \\
\end{array}
\]

Solve.

1. $419 \times 24$  
2. $553 \times 36$
3. $245 \times 26$  
4. $339 \times 74$
5. $153 \times 75$  
6. $414 \times 48$
7. $463 \times 22$  
8. $202 \times 23$
9. $218 \times 90$  
10. $186 \times 80$
11. $350 \times 61$  
12. $727 \times 31$
13. $247 \times 35$  
14. $643 \times 57$
15. $668 \times 44$  
16. $915 \times 29$
Multiply Three-Digit Numbers by Two-Digit Numbers

Multiply.

1. $869 \times 59$
2. $357 \times 16$
3. $359 \times 10$
4. $981 \times 53$
5. $456 \times 38$
6. $523 \times 26$
7. $309 \times 19$
8. $500 \times 20$
9. $296 \times 33$
10. $198 \times 41$
11. $302 \times 11$
12. $517 \times 68$
13. $775 \times 19$
14. $120 \times 42$
15. $343 \times 59$
16. $118 \times 13$
17. $296 \times 21$
18. $178 \times 12$
19. $373 \times 14$
20. $385 \times 15$

Solve.

21. Ali’s mom said for every 20 hours Ali worked, she would earn $150. After Ali worked 40 hours, how much did she earn? ____________

22. Patti’s heart beats 125 times in a minute. How many times does her heart beat in an hour? ____________
Multiply Three-Digit Numbers by Two-Digit Numbers

Multiply.

1. 185 × 18
2. 152 × 83
3. 525 × 63
4. 467 × 81
5. 149 × 21
6. 555 × 28
7. 542 × 25
8. 336 × 92
9. 342 × 19
10. 521 × 52
11. 417 × 23
12. 643 × 26
13. 950 × 48
14. 311 × 11
15. 322 × 35
16. 229 × 45
17. 661 × 78
18. 738 × 22
19. 120 × 42
20. 620 × 33

Spiral Review

Multiply. (Lesson 8–4)

21. 25 × 62
22. 19 × 38
23. 95 × 82
24. 22 × 17
25. 85 × 21
26. 49 × 11
27. 62 × 45
28. 79 × 63
29. 38 × 26
30. 45 × 18
31. 75 × 85
32. 66 × 27
33. 92 × 37
34. 42 × 79

35. Look back at exercises 21–34 and circle all factors that are multiples of 5.
Problem-Solving Practice

Multiply Three-Digit Numbers by Two-Digit Numbers

Solve.

1. Each art class uses 231 pipe cleaners for a project. How many pipe cleaners will 15 classes use? Multiply. Check that the answer is reasonable.


3. Each week, 989 cars drive through the wildlife park. How many cars drive through the park in 24 weeks? Multiply. Check that the answer is reasonable.

4. A classroom set of books about space exploration costs $234. There are 16 classes. How much will books for all of the classes cost? Multiply. Check that the answer is reasonable.

5. The tile crew can lay 878 tiles in one day. How many tiles can the crew lay in 62 days? Multiply. Check that the answer is reasonable.

6. There are 981 floor tiles in one classroom in the school. How many floor tiles will it take to replace the tiles in 28 classrooms? Multiply. Check that the answer is reasonable.
Fill in the missing digits in the multiplication problems below.

1. \[ 83 \times 42 = 1674 + 338 = 3514 \]
2. \[ 62 \times 38 = 5376 + 201 = 5577 \]
3. \[ 14 \times 5 = 5484 + 4570 = 10054 \]
4. \[ 55 \times 71 = 3875 + 3775 = 7650 \]
5. \[ 46 \times 7 = 3222 + 3222 = 6444 \]
6. \[ 95 \times 8 = 760 + 760 = 1520 \]
Mandy went shopping. Her mother gave her a bank card to use and told her that she could not spend more than $200. Mandy spent $56 in the first store, $87 in the next, then $95, and finally $103. When she got home, Mandy told her mother that she wasn’t sure but thought she stayed under $200. Does this make mathematical sense?

**Understand**

Be sure you understand the problem.

What do you know?
- Mandy has a limit of $200.
- She spent $56, $87, $95, and $103.

What do you need to find?
- You need to find if Mandy stayed within her limit.

**Plan**

Make a plan.

You can use the make a table strategy to find how much Mandy spent. You can estimate the amount Mandy spent at each store and place the amounts in the table.

<table>
<thead>
<tr>
<th>Store #1</th>
<th>Store #2</th>
<th>Store #3</th>
<th>Store #4</th>
</tr>
</thead>
<tbody>
<tr>
<td>$56</td>
<td>$87</td>
<td>$95</td>
<td>$103</td>
</tr>
</tbody>
</table>

**Solve**

$56 + $87 + $95 + $103 = $341

$341 − $200 = $141

So, Mandy spent $141 over her $200 limit.

**Check**

Is the solution reasonable?

Reread the problem.
Check your answer.

Solve and tell what strategies you used.

1. Sandy spent $459 on gifts. She spent about $50 on each person. How many people did she buy gifts for?
2. Caitlin, Erin, and Jeannie are on the track team. Over the season, Caitlin won 2 times and came in second 2 times. Erin won 1 time and came in second 5 times. Jeannie did not win at all, but came in second 8 times. The runners earn 10 points for winning and 5 points for coming in second. Who got the most points this season?

3. Kyle is 4,000 days old. About how many years old is he?

4. Hao solved the following problem. $42 \times 37 = 1,554$
   Explain how Hao could check his answer.

5. At a store, jeans are on sale for $32 and sweaters are on sale for $28. How much will it cost Mrs. Jackson to buy 3 pairs of jeans and 4 sweaters for her children?

6. Carmen bought 5 dozen muffins for her class. Each student got 2 muffins. Estimate how many people are in Carmen’s class and explain your answer.

7. Every teacher at Mountain Elementary is provided 800 sheets of paper. How many sheets of paper do the 50 teachers have altogether?

8. Isra is thinking of two numbers that have a sum of 7 and a product of 10. What are the two numbers?
8–6

Skills Practice

Problem-Solving Investigation

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

1. Beth bought 4 boxes of beads. Each box held 305 beads. How many beads did she buy in all? ________ beads
   Tell which method you used.

2. Each box of beads cost $2. Beth bought 6 boxes. How much did she spend on all of the beads? $ ________
   Tell which method you used.

3. Brian and Gaby are decorating boxes with beads for the craft fair. Each box uses 705 beads. How many beads do they need to decorate 4 boxes? ________ beads
   Tell which method you used.

4. Brian and Gaby sell each decorated box for $15. If they sell 3 boxes, how much money will they make? $ ________
   Tell which method you used.

5. For the 10-kilometer race, there were 698 runners. Each runner was given 3 passes for friends and family to be at the finish line. How many passes were given out? ________ passes
   Tell which method you used.

6. Runners paid $6 to enter the race. How much money was collected from 437 runners? $ ________
   Tell which method you used.
Use any strategy to solve. Tell what strategy you used.

1. It costs $216 to buy 24 tickets to the water park. How much does each ticket cost? Tell which method you used. ________________

2. There are 156 beads. They are divided into 12 equal groups. How many beads are in each group? Tell which method you used. ________________

3. For a long-distance race, $175 was collected from each of 9 runners. How much was collected in all? Tell which method you used. ________________

4. For a bicycle race, there are 432 cyclists. Each cyclist paid $12 to enter the race. How much money did the cyclists pay in all? Tell which method you used. ________________

5. The owner of the hobby store pays $92 for an order of 23 model car kits. How much does each model car kit cost? Tell which method you used. ________________

6. There were 200 model car kits delivered to the hobby store. They were packed in 25 boxes. How many model car kits were in each box? Tell which method you used. ________________

Spiral Review

Multiply. (Lesson 8–5)

7. 801 \times 86 = ________
8. 631 \times 12 = ________
9. 511 \times 59 = ________
10. 775 \times 24 = ________
11. 362 \times 42 = ________
12. 933 \times 96 = ________
13. 339 \times 33 = ________
14. 460 \times 71 = ________
15. 823 \times 69 = ________
In the 17th century, John Napier invented a simple calculator that multiplied by adding. Use Napier’s Bones to find $49 \times 37$.

1. Cut out the ten strips below. Place the 4, 9, and index strips next to each other.

2. Fold the strips so that rows 3 and 7 of the index are next to each other. See how the diagonal lines form a pattern of diagonal columns.

3. To find the product, add the numbers along the diagonal columns starting from the bottom right. The first diagonal (3) is the ones digit. The next diagonal ($7 + 6 + 8 = 21$) is the tens. Write 1 under the tens column and regroup 2 to the next diagonal. Add the next diagonal, $2 + 2 + 2 + 2 = 8$, for the hundreds. The last diagonal (1) is the thousands. So, the product of $49 \times 37$ is 1,813.

Use the strips to find each product.

1. $57 \times 34 = \underline{\hspace{2cm}}$

2. $61 \times 76 = \underline{\hspace{2cm}}$

3. $85 \times 29 = \underline{\hspace{2cm}}$

4. $32 \times 33 = \underline{\hspace{2cm}}$

5. $94 \times 65 = \underline{\hspace{2cm}}$

6. $56 \times 48 = \underline{\hspace{2cm}}$
Find 4,263 × 43.
Estimate: 4,000 × 40 = 160,000

**Step 1** Multiply the ones. Regroup if necessary. Cross out the amount you regroup when you add it.

\[
\begin{align*}
& \phantom{1}1 \\
4,263 & \times 43 \\
\underline{12,789} & \hspace{1cm} 4,263 \times 3
\end{align*}
\]

**Step 2** Multiply the tens. Remember, a zero is in the ones place when you multiply the tens.

\[
\begin{align*}
& \phantom{1}1 \ 2 \ 1 \\
1 & \phantom{0} \\
4,263 & \times 43 \\
\underline{12,789} & \hspace{1cm} 4,263 \times 3 \\
170,520 & \hspace{1cm} 4,263 \times 40
\end{align*}
\]

**Step 3** Add.

\[
\begin{align*}
& \phantom{1}1 \ 2 \ 1 \\
1 & \phantom{0} \\
4,263 & \times 43 \\
\underline{12,789} & \hspace{1cm} 4,263 \times 3 \\
170,520 & \hspace{1cm} 4,263 \times 40 \\
\underline{+} & \phantom{1} \\
183,309 & \\
\end{align*}
\]

**Multiply.**

1. 1,435 × 45  
2. 6,901 × 38  
3. 7,468 × 31  
4. 5,297 × 12  
5. 5,852 × 52  
6. 8,448 × 24
Skills Practice

Multiply Greater Numbers

Multiply.

1. \[693 \times 24\]

2. \[\$601 \times 33\]

3. \[8,072 \times 58\]

4. \[907 \times 25\]

5. \[2,901 \times 42\]

6. \[\$3,888 \times 64\]

7. \[16 \times 2,369 = \] ______

8. \[39 \times \$1,288 = \] ______

9. \[65 \times 19,091 = \] ______

10. \[78 \times 12,967 = \] ______

ALGEBRA Complete the table.

<table>
<thead>
<tr>
<th>Input</th>
<th>12</th>
<th>15</th>
<th>18</th>
<th>21</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>48</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Solve.

12. Maria and Natalie made 12 trips between New York City and Los Angeles. Each trip cost $598 per person. How much did the 12 trips cost? ______

Multiply.

1. $1,560 \times 27 = \underline{42,120}$
2. $5,883 \times 39 = \underline{227,637}$
3. $3,442 \times 32 = \underline{110,144}$
4. $16,846 \times 21 = \underline{353,766}$
5. $6,251 \times 54 = \underline{337,854}$
6. $31,067 \times 40 = \underline{1,242,680}$
7. $40,724 \times 32 = \underline{1,303,168}$
8. $25,331 \times 48 = \underline{1,215,888}$
9. $3,166 \times 21 = \underline{66,486}$
10. $84,000 \times 32 = \underline{2,688,000}$
11. $2,909 \times 44 = \underline{128,696}$
12. $62,510 \times 54 = \underline{3,415,540}$

13. Antonio runs 2 miles a day. In one mile there is 5,280 feet. How many feet does he run in 2 weeks? $\underline{63,360}$

14. If a panda bear eats 84 pounds of fresh bamboo sprouts every day, how many pounds of bamboo do 12 pandas eat in two weeks? $\underline{11,304}$

15. There are 2,734 miles between Seattle, Washington and Miami, Florida. If Consuelo travels round trip from Miami to Seattle 6 times, how many miles does she travel altogether? $\underline{32,804}$

Spiral Review

Solve. (Lesson 8–6)

16. Brady is counting the money in his piggy bank. He has $0.56. He has 3 kinds of coins and 8 coins in all. What coins does he have? $\underline{8$0.01 coins, 7$0.05 coins}$

17. Sara is thinking of two numbers that have a sum of 15 and a product of 56. What are the two numbers? $\underline{7 and 8}$

18. Marc has 15 trophies. Four of the trophies are for track. He has two times as many swimming trophies as track trophies. The rest of the trophies are for soccer. How many soccer trophies does he have? $\underline{10}$
Solve.

1. Jamie travels 3,056 miles each year. How many miles does Jamie travel in 15 years?

2. Fourteen members of the crafts club are making necklaces. It takes 202 beads to make each necklace. How many beads will they need if they each make 5 necklaces?

3. An elephant weighs 13,500 pounds. How much would 25 elephants the same size weigh all together?

4. Jason is taking a bus to visit his grandparents. The bus trip is 113 miles each way. How many miles will Jason travel to and from his grandparents’ house? Write the multiplication sentence and solve.

5. Jack is a pilot for a large airline. He plans on retiring in 11 years. Every week, he follows the same schedule of flights. He knows that he flies 78,434 miles each year. How many miles will he fly before he retires?

6. The city parks commission wants to build a new park. The model has 6 tennis courts. Each tennis court will cost $92,378. The city does not want to pay more than $550,000 for all 6 courts. How much will the tennis courts cost? Will the city be able to build all of them?
Enrich

Eight Million or More

Using the digits 3, 4, 5, 6, 7, 8, and 9, write at least 5 multiplication problems with a product of eight million or more. You may not use the same digit more than once in the same problem. Multiply to check your answers.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Using the same digits (3, 4, 5, 6, 7, 8, and 9), write at least 5 numbers that round to six million. Round to check your answers.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Now, create a problem for a partner.

Choose seven digits. __  __  __  __  __  __  __

Create a question. For example, write at least 5 addition problems with a sum less than four million.

________________________________________________________________________

Trade with a partner, and complete each other’s problems.
# Individual Progress Checklist

<table>
<thead>
<tr>
<th>B</th>
<th>D</th>
<th>M</th>
<th>Goal</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>multiply by multiples of ten</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>estimate products by rounding</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>multiply by two-digit numbers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>solve problems by acting them out</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>multiply multidigit numbers by a two-digit number</td>
<td></td>
</tr>
</tbody>
</table>

## Notes

__________________________________________________________________
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Chapter Diagnostic Assessment

Round to the given place.

1. 504; nearest ten
2. 3,244; nearest hundred
3. 78,990; nearest ten thousand
4. 967,021; nearest thousand

Add.

5. 873 + 455 = n
6. 3,569 + 989 = n
7. 13,402 + 34,209 = n
8. 518,667 + 253,012 = n

Multiply.

9. 3 × 6
10. 5 × 7
11. 20 × 6
12. 67 × 4
13. 30 × 8
14. 43 × 3
Chapter Pretest

Multiply.

1. 97
   × 80
2. 12
   × 35
3. 21
   × 18
4. 48
   × 30
5. $61
   × 48
6. 60
   × $27
7. 10
   × 63
8. 5,621
   × 13

Estimate each product using rounding.

9. 68,879
   × 22
10. 932
    × 28
11. $79,997
    × 12
12. 11,111
    × 56

Solve. Check for reasonableness.

13. In Oaxaca, the fifth largest state in Mexico, about 97 people live in each square mile. The area of Oaxaca is about 36,829 square miles. Estimate how many people live in Oaxaca.

14. The average teacher in California makes $53,870 per year. About how much money is paid in salaries at a school with 36 teachers?

15. A dragonfly can fly 36 miles an hour. If a dragonfly flew for 5 days straight, how many miles would it have traveled? ________

16. Savannah writes 30 pages in her journal every week. How many pages does she write in a year? ________
Multiply.

1. 16
   \[ \times 30 \]
   1. \[ \underline{\quad} \]

2. 70
   \[ \times 70 \]
   2. \[ \underline{\quad} \]

3. $563
   \[ \times 40 \]
   3. \[ \underline{\quad} \]

4. 33
   \[ \times 60 \]
   4. \[ \underline{\quad} \]

5. $123
   \[ \times 20 \]
   5. \[ \underline{\quad} \]

Estimate. Tell whether the estimate is greater or less than the actual product.

6. $67
   \[ \times 15 \]
   6. \[ \underline{\quad} \]

7. $671
   \[ \times 29 \]
   7. \[ \underline{\quad} \]

8. 42
   \[ \times 34 \]
   8. \[ \underline{\quad} \]

9. 89
   \[ \times 65 \]
   9. \[ \underline{\quad} \]

10. Sam’s heart beats 83 times a minute.
    About how many times does his heart beat in an hour?
    10. \[ \underline{\quad} \]
Multiply.

1. $23 \times 18$

2. $36 \times 36$

3. $81 \times 48$

4. $11 \times 44$

5. $47 \times 63$

6. $64 \times 19$

Solve.

7. Marisol buys a snack that costs 85 cents. She pays with 7 coins. What coins does she use?

8. Lilly, Amma, and Joy are standing in line. How many ways can they line up in a different order?

9. Four students measure their heights. Randy is shorter than Tessa but taller than Will. Will is taller than Ko, but shorter than Tessa. Arrange the students in order from shortest to tallest.

10. Jody has $1.40 in her purse. She has three times as many dimes as nickels. What is the largest number of dimes Jody could have?
Multiply.

1. \[164 \times 33\]
2. \[555 \times 99\]
3. \[15,717 \times 23\]
4. \[6,412 \times 58\]
5. \[20,341 \times 33\]
6. \[$456 \times 42\]
7. \[$3,001 \times 29\]

Solve.

8. Earl blinks 20 times a minute. How many times does he blink in an hour?

9. Yolanda wants to buy a shirt that costs $21.95 and a hat that costs $15.82. If she has $30, how much more money does she need?

10. Omar is thinking of two numbers that have a sum of 28 and a product of 160. What are the two numbers?
Mid-Chapter Review (Lessons 8-1 through 8-4)

Multiply.

1. $78 \times 30$
   - A. 234
   - B. 108
   - C. 2,340
   - D. 2,440
   1. ________

2. $45 \times 71$
   - F. $360$
   - G. $3,295$
   - H. $3,095$
   - J. $3,195
   2. ________

3. $46 \times 32$
   - A. 1,472
   - B. 1,473
   - C. 1,571
   - D. 1,572
   3. ________

4. $83 \times 83$
   - F. $6,889$
   - G. $6,888$
   - H. $5,889$
   - J. $1,444$
   4. ________

5. $322 \times 40$
   - A. 1,288
   - B. 1,298
   - C. 12,880
   - D. 12,980
   5. ________

Estimate. Tell whether the estimate is greater or less than the actual product.

6. $62 \times 54$
   6. ________

7. $181 \times 46$
   7. ________

8. $76 \times 25$
   8. ________

Solve.

9. Wade has 72 cents. He does not have any half-dollar coins. Find the least possible number of coins that Wade has.
   9. ________

10. Kira is 10 years old. Kira’s sister Rochelle is 13 years younger than 3 times Kira’s age. How old is Rochelle?
    10. ________
8 Vocabulary Test

Match each word to its definition. Write your answers on the lines provided.

1. Distributive Property of Multiplication _____

2. estimate _____

3. multiplication _____

4. product _____

5. round _____

6. whole number _____

A. The answer to a multiplication problem.

B. To change the value of a number to one that is easier to work with. To find the nearest value of a number based on a given place value.

C. The numbers 0, 1, 2, 3, and 4.

D. The property that states that to multiply a sum by a number, you can multiply each addend by the same number and add the products.

E. A number close to an exact value.

F. An operation on two numbers to find their product. It can be thought of as repeated addition.
For this activity you will need 30 counting blocks. Put 10 blocks in a row to make a line of blocks.

**Read each question aloud to the student. Then write the student’s answers on the lines below the question.**

1. How many blocks are in the row?
   
   ____________________________________________________________
   ____________________________________________________________

2. If you multiplied the number of blocks by 2, how many blocks would you have?
   
   ____________________________________________________________
   ____________________________________________________________

3. Tell how you got your answer.
   
   ____________________________________________________________
   ____________________________________________________________

4. If you stacked 10 more blocks on top, how many blocks would there be?
   
   ____________________________________________________________
   ____________________________________________________________

5. If you divided those 30 blocks in half, how many blocks would be in each group?
   
   ____________________________________________________________
   ____________________________________________________________

6. Instead of stacking the blocks in groups of ten, how could you stack them in even rows?
   
   ____________________________________________________________
7. Explain your answer.

---

<table>
<thead>
<tr>
<th>Average Amount of Foods Eaten by a Person Each Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandwiches</td>
</tr>
<tr>
<td>Chips</td>
</tr>
</tbody>
</table>

Use the chart above to answer the following questions:

8. How many orders of chips would a person eat over 3 years?

9. Prove your answer.

10. What is the rounded amount of sandwiches a person eats in a year?

11. Tell how you got your answer.

12. About how many sandwiches would a person eat over 10 years?

13. Explain your answer.
## Chapter Project Rubric

<table>
<thead>
<tr>
<th>Score</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Student successfully completed the chapter project. Student demonstrated appropriate use of chapter information in completing the chapter project.</td>
</tr>
<tr>
<td>2</td>
<td>Student completed the chapter project with partial success. Student partially demonstrated appropriate use of chapter information in completing the chapter project.</td>
</tr>
<tr>
<td>1</td>
<td>Student did not complete the chapter project or completed it with little success. Student demonstrated very little appropriate use of chapter information in completing the chapter project.</td>
</tr>
<tr>
<td>0</td>
<td>Student did not complete the chapter project. Student demonstrated inappropriate use of chapter information in completing the chapter project.</td>
</tr>
</tbody>
</table>
## Foldables Rubric

**Multiply by Two-Digit Numbers**  
*Layered Look Foldable*

<table>
<thead>
<tr>
<th>Score</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| 3     | Student properly assembled Foldables graphic organizer according to instructions.  
   Student recorded information related to the chapter in the manner directed by the Foldables graphic organizer.  
   Student used the Foldables graphic organizer as a study guide and organizational tool. |
| 2     | Student exhibited partial understanding of proper Foldables graphic organizer assembly.  
   Student recorded most but not all information related to the chapter in the manner directed by the Foldables graphic organizer.  
   Student demonstrated partial use of the Foldables graphic organizer as a study guide and organizational tool. |
| 1     | Student showed little understanding of proper Foldables graphic organizer assembly.  
   Student recorded only some information related to the chapter in the manner directed by the Foldables graphic organizer.  
   Student demonstrated little use of the Foldables graphic organizer as a study guide and organizational tool. |
| 0     | Student did not assemble Foldables graphic organizer according to instructions.  
   Student recorded little or no information related to the chapter in the manner directed by the Foldables graphic organizer.  
   Student did not use the Foldables graphic organizer as a study guide and organizational tool. |
Chapter Test Form 1

Read each question carefully. Write your answer on the line provided.

1. \[500 \times 60\]
   - A. 300
   - B. 3,000
   - C. 30,000
   - D. 300,000

2. \[40 \times 57 = \]
   - F. 228
   - G. 2,028
   - H. 2,280
   - J. 20,280

3. \[31 \times 47 = \]
   - A. 1,247
   - B. 1,257
   - C. 1,447
   - D. 1,457

4. \[7000 \times 20\]
   - F. 140
   - G. 1,400
   - H. 14,000
   - J. 140,000

5. \[40 \times 357 = \]
   - A. 1,428
   - B. 1,208
   - C. 12,080
   - D. 14,280

6. \[38 \times 72 = \]
   - F. 2,736
   - G. 2,763
   - H. 2,836
   - J. 2,063

7. \[30 \times 6,000 = \]
   - A. 180
   - B. 1,800
   - C. 18,000
   - D. 180,000

8. \[1,482 \times 30\]
   - F. 4,460
   - G. 44,400
   - H. 44,460
   - J. 46,460

9. \[62 \times 28 = \]
   - A. 1,730
   - B. 1,736
   - C. 1,763
   - D. 17,360

10. \[80 \times 4,000 = \]
    - F. 320,000
    - G. 32,000
    - H. 3,200
    - J. 320

11. \[2,489 \times 70 = \]
    - A. 172,340
    - B. 173,420
    - C. 174,230
    - D. 174,320
12. $37 \times 84 = 
  \begin{array}{l}
      \text{A. } 3,018 \\
      \text{B. } 3,108 \\
      \text{C. } 3,180 \\
      \text{D. } 30,108 \\
    \end{array}
  \boxed{12.} \\

13. $50 \times 3,000 = 
  \begin{array}{l}
      \text{A. } 1,500 \\
      \text{B. } 15,000 \\
      \text{C. } 150,000 \\
      \text{D. } 1,500,000 \\
    \end{array}
  \boxed{13.} \\

14. $60 \times 56 = 
  \begin{array}{l}
      \text{A. } 3,030 \\
      \text{B. } 3,036 \\
      \text{C. } 3,063 \\
      \text{D. } 3,360 \\
    \end{array}
  \boxed{14.} \\

15. $29 \times 67 = 
  \begin{array}{l}
      \text{A. } 1,943 \\
      \text{B. } 1,893 \\
      \text{C. } 1,493 \\
      \text{D. } 1,439 \\
    \end{array}
  \boxed{15.} \\

16. There are 4 tennis balls in a can. There are 4 cans in a stack and 6 stacks in a case. Each can is $3. How much is a case?
  \begin{array}{l}
      \text{F. } $72 \\
      \text{G. } $96 \\
      \text{H. } $105 \\
      \text{J. } $288 \\
    \end{array}
  \boxed{16.} \\

17. A warehouse received its first shipment of 11,350 shirts. Then it sent out two shipments of 3,240 shirts each. It then received 4,250 shirts. How many shirts are in the warehouse now?
  \begin{array}{l}
      \text{A. } 3,860 shirts \\
      \text{B. } 9,120 shirts \\
      \text{C. } 12,360 shirts \\
      \text{D. } 18,840 shirts \\
    \end{array}
  \boxed{17.} \\

18. 34 buses set out together on a trip from New York to Montreal. Each bus held 48 people. How many people took the trip from New York to Montreal?
  \begin{array}{l}
      \text{F. } 1,632 people \\
      \text{G. } 1,432 people \\
      \text{H. } 1,302 people \\
      \text{J. } 1,236 people \\
    \end{array}
  \boxed{18.} \\

19. A volunteer can gather 84 signatures per day for an environmental campaign. How many signatures can 25 volunteers gather per day?
  \begin{array}{l}
      \text{A. } 2,010 signatures \\
      \text{B. } 2,100 signatures \\
      \text{C. } 2,200 signatures \\
      \text{D. } 20,100 signatures \\
    \end{array}
  \boxed{19.} \\

20. Tickets to a concert cost $18 for adults and $12 for senior citizens. How much will it cost for 22 adults and 34 senior citizens to buy tickets to the concert?
  \begin{array}{l}
      \text{F. } $408 \\
      \text{G. } $612 \\
      \text{H. } $804 \\
      \text{J. } $1,680 \\
    \end{array}
  \boxed{20.}
Chapter Test Form 2A

Read each question carefully. Write your answer on the line provided.

1. \(600 \times 40 = \)  
   A. 240  
   B. 2,400  
   C. 240,000  
   D. 2,400,000

2. \(30 \times 67 = \)  
   F. 21,000  
   G. 20,010  
   H. 2,110  
   J. 2,010

3. \(21 \times 37 = \)  
   A. 477  
   B. 677  
   C. 754  
   D. 777

4. \(9,000 \times 40 = \)  
   F. 360  
   G. 36,000  
   H. 360,000  
   J. 3,600,000

5. \(60 \times 253 = \)  
   A. 16,000  
   B. 15,180  
   C. 1,580  
   D. 1,200

6. \(41 \times 63 = \)  
   F. 258  
   G. 2,500  
   H. 2,583  
   J. 25,803

7. \(20 \times 5,000 = \)  
   A. 100  
   B. 1,000  
   C. 10,000  
   D. 100,000

8. \(2,892 \times 60 = \)  
   F. 173,520  
   G. 17,520  
   H. 1,752  
   J. 173

9. \(34 \times 58 = \)  
   A. 197  
   B. 1,279  
   C. 1,792  
   D. 1,972

10. \(40 \times 7,000 = \)  
    F. 280,000  
    G. 210,000  
    H. 24,000  
    J. 2,800

11. \(3,335 \times 80 = \)  
    A. 268  
    B. 26,800  
    C. 240,000  
    D. 266,800
12. $47 \times 94 = \boxed{418}$
   F. 418  G. 4,418  H. 44,018  J. 367,000  12. ____

13. $40 \times 3,000 = \boxed{120}$
   A. 120  B. 1,200  C. 12,000  D. 120,000  13. ____

14. $20 \times 84 = \boxed{168}$
   F. 168  G. 1,680  H. 1,700  J. 16,800  14. ____

15. $27 \times 29 = \boxed{783}$
   A. 783  B. 773  C. 489  D. 56  15. ____

16. There are 6 cans of juice in a pack. There are 6 packs in a stack and 8 stacks in a case. How many cans of juice are in a case?
   F. 2,888  H. 120
   G. 288  J. 44  16. ____

17. Shawn had 48 marbles. He gave 10 to his little brother, then bought 15 more. Later, his friend gave him twice the amount he first had. How many marbles does he have now?
   A. 149  B. 146  C. 116  D. 115  17. ____

18. A warehouse received its first shipment of 5,677 backpacks. Then it sent out two shipments of 1,444 each. It then received 3,230 backpacks. How many backpacks are in the warehouse now?
   F. 61,019  G. 10,351  H. 6,019  J. 619  18. ____

19. A volunteer can gather 78 signatures per day for a recreation center petition. How many signatures can 35 volunteers gather per day?
   A. 270  B. 377  C. 2,730  D. 27,030  19. ____

20. Movie tickets are $8 for adults and $5 for children. How much will it cost for 12 adults and 10 children to buy movie tickets?
   F. $96  G. $100  H. $146  J. $156  20. ____
Chapter Test Form 2B

Read each question carefully. Write your answer on the line provided.

1. $300 \times 70 = \underline{\hspace{2cm}}$
   A. 210,000  B. 21,000  C. 2,100  D. 210
   1. ____

2. $40 \times 68 = \underline{\hspace{2cm}}$
   F. 27,200  G. 2,620  H. 2,720  J. 272
   2. ____

3. $49 \times 75 = \underline{\hspace{2cm}}$
   A. 3,675  B. 3,775  C. 1,225  D. 124
   3. ____

4. $200 \times 60 = \underline{\hspace{2cm}}$
   F. 120,000  G. 12,000  H. 1,200  J. 120
   4. ____

5. $70 \times 327 = \underline{\hspace{2cm}}$
   A. 228,900  B. 22,890  C. 2,289  D. 397
   5. ____

6. $47 \times 85 = \underline{\hspace{2cm}}$
   F. 132  G. 376  H. 3,760  J. 3,995
   6. ____

7. $30 \times 8,000 = \underline{\hspace{2cm}}$
   A. 2,400  B. 24,000  C. 240,000  D. 2,400,000
   7. ____

8. $5,034 \times 20 = \underline{\hspace{2cm}}$
   F. 1,000,680  G. 100,680  H. 10,680  J. 5,054
   8. ____

9. $28 \times 62 = \underline{\hspace{2cm}}$
   A. 17,360  B. 1,836  C. 1,736  D. 224
   9. ____

10. $70 \times 8,000 = \underline{\hspace{2cm}}$
    F. 560,000  G. 480,000  H. 56,000  J. 8,070
    10. ____

11. $30 \times 8,000 = \underline{\hspace{2cm}}$
    A. 2,400  B. 24,000  C. 240,000  D. 2,400,000
    11. ____

12. $2,228 \times 90 = \underline{\hspace{2cm}}$
    F. 2,520  G. 20,052  H. 20,520  J. 200,520
    12. ____
13. $50 \times 6,000 = \underline{\hspace{2cm}}$
   A. 300,000  B. 30,000  C. 3,000  D. 300

14. $50 \times 72 = \underline{\hspace{2cm}}$
   F. 360,000  G. 36,000  H. 3,600  J. 360

15. $48 \times 59 = \underline{\hspace{2cm}}$
   A. 2,832  B. 2,932  C. 28,320  D. 2,830

16. There are 12 ink pens in a pack. There are 3 packs in a stack and 12 stacks in a case. How many ink pens are in a case?
   F. 442  G. 432  H. 147  J. 27

17. $48 \times 59 = \underline{\hspace{2cm}}$
   A. 2,830  B. 2,832  C. 2,932  D. 28,320

18. Min had 96 beads. She gave 20 to her little sister, then bought 25 more. Later, her friend gave her twice the amount she first had. How many beads does she have now?
   F. 333  G. 293  H. 217  J. 197

19. Shawnda’s mom can make 23 pints of applesauce in one day. How many pints of apple sauce can she make in 3 days?
   A. 79  B. 69  C. 46  D. 26

20. Tickets for the zoo are $10 for adults and $4 for children. How much will it cost for 3 adults and 2 children to buy zoo tickets?
   F. $50  G. $38  H. $32  J. $28
Chapter Test Form 2C

Read each question carefully. Fill in the correct answer in the space provided.

1. \( 700 \times 50 = \)  
2. \( 30 \times 56 = \)  
3. There are 8 boxes of juice in a pack. There are 6 packs in a stack and 10 stacks in a case. How many boxes of juice are in a case?  
4. Chloe had 56 stickers. She gave 8 to her little brother, then bought 15 more. Later, her friend gave her twice the amount she first had. How many stickers does she have now?  
5. \( 43 \times 66 = \)  
6. \( 6,000 \times 30 = \)  
7. \( 60 \times 451 = \)  
8. \( 41 \times 92 = \)  
9. \( 20 \times 8,000 = \)  
10. \( 3,241 \times 60 = \)
11. $34 \times 71 = 

12. $40 \times 9,000 = 

13. A warehouse received its first shipment of 5,214 calculators. Then it sent out two shipments of 1,892 each. It then received 6,214 calculators. How many calculators are in the warehouse now? 

14. $4,449 \times 80 = 

15. $47 \times 62 = 

16. $90 \times 3,000 = 

17. $20 \times 79 = 

18. $27 \times 35 = 

19. Mia can make 31 baskets in one month. How many baskets can she make in 6 months? 

20. Aquarium tickets are $12 for adults and $4 for children. How much will it cost for 4 adults and 3 children to buy aquarium tickets?
Chapter Test Form 2D

Read each question carefully. Fill in the correct answer in the space provided.

1. $500 \times 40 = \underline{}$

2. $20 \times 67 = \underline{}$

3. There are 16 markers in a pack. There are 10 packs in a stack and 12 stacks in a case. How many markers are in a case?

4. Jose had 36 baseball cards. He gave 10 to his little brother. Then he bought 22 more. Then, his friend gave him twice the amount he first had. How many baseball cards does he have now?

5. $21 \times 58 = \underline{}$

6. $4,000 \times 40 = \underline{}$

7. $60 \times 461 = \underline{}$

8. $39 \times 63 = \underline{}$

9. $50 \times 5,000 = \underline{}$

10. $6,102 \times 60 = \underline{}$
11. $67 \times 58 =

12. $60 \times 7,000 =

13. A warehouse received 3,813 books. Then it sent out two shipments of 895 each. It then received 2,108 books. How many books are in the warehouse now?

14. $4,176 \times 60 =

15. $58 \times 94 =

16. $40 \times 5,000 =

17. $50 \times 84 =

18. $42 \times 29 =

19. Miguel can pick 18 apples in 10 minutes. How many apples can he pick in 1 hour?

20. Museum tickets are $7 for adults and $5 for children. How much will it cost for 6 adults and 5 children to buy museum tickets?
Read each question carefully. Fill in the correct answer in the space provided.

1. Computer monitors cost $219. How much will it cost to buy 20 monitors?

For Exercises 2-4, estimate each product.

2. \(5,198 \times 50 = \)  
3. \(6,930 \times 12 = \)  
4. \(7,190 \times 68 = \)  

5. The price of a plane ticket is about $398. About how much will tickets cost for 4 adults to fly?

6. Mario is 7 years older than Nate. Nate is 2 years younger than Rose. If Rose is 9 years old, how old is Mario?

7. Carl has 6 bills equaling $100. ($5, $10, $20) What combination of bills does he have?

Multiply.

8. \(41 \times 12 = \)  
9. \(34 \times 56 = \)  
10. \(425 \times 35 = \)  
11. \(382 \times 26 = \)  
12. \(3,705 \times 47 = \)  
13. \(31,802 \times 52 = \)  
14. \(17,825 \times 33 = \)
15. The math department bought 14 graphing calculators for $89 each. How much did the math department spend on graphing calculators?

16. A kids meal costs $3. How much would 26 kids meals cost?

17. Participants paid $20 to enter a charity walk. How much money was collected from 529 participants?

18. The principal bought 23 boxes of stickers. Each box held 625 stickers. How many stickers did she buy in all?

19. Nicole runs 24 miles a month. In one mile there is 1,760 yards. How many yards does she run in one year?

20. An elephant can eat 400 pounds of food every day. How many pounds of food do 5 elephants eat in one week?
Chapter Extended-Response Test

Demonstrate your knowledge by giving a clear, concise solution to each problem. Be sure to include all relevant drawings and justify your answers. You may show your solution in more than one way or investigate beyond the requirements of the problem. If necessary, record your answer on another piece of paper.

1. Identify the multiplication problem that does not belong with the other three. Explain.
   
   $39 \times 20$
   $21 \times 20$
   $13 \times 20$
   $69 \times 20$

2. What word in a problem gives you the hint to estimate?
   
   ____________________________

   a. How do you estimate a product?
   
   ____________________________

3. Solve the following problem using the Act it Out strategy.
   
   Sonya has 5 coins in her pocket. The coins equal $0.75. What combination of coins does she have in her pocket?
   
   ____________________________
Student Recording Sheet

Use this recording sheet with pages 332–333 of the Student Edition.
Read each question. Then fill in the correct answer.

1. A B C D

2. F G H J

3. A B C D

4. F G H J

5. A B C D

6. F G H J

7. A B C D

8. F G H J

9. A B C D
Cumulative Standardized Test Practice

Test Example

Domingo washed 64 cars over the summer. He charged $12 a car. How much money did he earn over the summer?

A. $786  B. $768  C. $868  D. $912

Read the Question

You need to multiply 64 by $12 to find the amount of money earned.

Solve the Question

Step 1 Multiply the ones.

\[
\begin{array}{c}
1 \\
64 \\
\times 12 \\
\hline
128 \quad (2 \times 64)
\end{array}
\]

Step 2 Multiply the tens.

Then add the partial products.

\[
\begin{array}{c}
1 \\
64 \\
\times 10 \\
\hline
640 \quad (10 \times 64)
\end{array}
\]

\[
\begin{array}{c}
128 \quad (2 \times 64) \\
+ 640 \quad (10 \times 64)
\end{array}
\]

\[
\begin{array}{c}
768 \quad (2 \times 64) + (10 \times 64)
\end{array}
\]

So, Domingo earned $768.
The answer is B.

Read each question. Then write your answer on the line provided.

1. Sylvia planted 8 rows of tomato plants. Each row had 12 tomato plants. How many tomato plants will she have in all?
   A. 64  B. 96  C. 106  D. 144  1. _____

2. What number makes this equation true?
   \[ 40 \times \square = 360 \]
   F. 9  G. 12  H. 320  J. 350  2. _____
Cumulative Standardized Test
Practice  (continued)

3. To raise money for new sports equipment, 56 students walked
15 miles each week for the month of September. How many total
miles did they walk in September?
A. 71  B. 840  C. 1,300  D. 3,360

4. Jamal reads 36 pages in his textbook each day for 14 days.
How many pages did he read in all?
F. 50  G. 400  H. 504  J. 540

5. Mrs. Rivera bought 157 tiles. Each tile cost $3. How much did she
spend on tiles?
A. $160  B. $351  C. $450  D. $471

6. How many zeros are in the product of 25 and 40,000?
F. 4  G. 5  H. 6  J. 7

7. Raul has 63 photos. His scrapbook holds 7 pictures on a page.
How many pages will he use in his scrapbook?
A. 8  B. 9  C. 10  D. 15

8. Barbara surveyed 50 students about their favorite kind of movies.
The results are in the tally table below.

<table>
<thead>
<tr>
<th>Favorite Kind of Movies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kind</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>Adventure</td>
</tr>
<tr>
<td>Comedy</td>
</tr>
<tr>
<td>Science Fiction</td>
</tr>
<tr>
<td>Thriller</td>
</tr>
</tbody>
</table>

Which 2 kinds of movies do 24 students enjoy seeing?
F. Adventure and Comedy  G. Science Fiction and Adventure
H. Comedy and Science Fiction  J. Thriller and Comedy
9. Amma scored 15 points and then some more points. By the end of the video game, she had scored 48 points. Which equation describes her points?

A. \(p - 15 = 48\) 
B. \(15 + 48 = p\) 
C. \(15 + p = 48\) 
D. \(15 - p = 48\)

9. ______

10. Jennie used a soccer magazine to list what she needed for soccer.

<table>
<thead>
<tr>
<th>Soccer Must Have List</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
</tr>
<tr>
<td>Ball</td>
</tr>
<tr>
<td>Shin Guards</td>
</tr>
<tr>
<td>Socks</td>
</tr>
<tr>
<td>Cleats</td>
</tr>
</tbody>
</table>

If Jennie buys all of the items, about how much will she spend? Round to the nearest ten.

F. $65   G. $80   H. $85   J. $90

10. ______

11. What number makes this equation true?

\[60 \times \square = 36,000\]

11. ______

12. Miguela set up 6 rows of chairs for the school play. Each row had 24 chairs. How many chairs will she have in all?

12. ______

13. How many zeros are in the product of 36 and 50,000?

13. ______

14. Oliver has 54 cartoons. His comic book holds 6 cartoons on a page. How many pages will he use in his comic book?

14. ______


15. ______

16. Aaron has decided to read 50 books this summer. If he has 8 weeks to read books, about how many books does he need to read each week to reach his goal?

16. ______
### Anticipation Guide

**Multiply by Two-Digit Numbers**

**STEP 1**

**Before you begin Chapter 8**

- Read each statement.
- Decide whether you agree (A) or disagree (D) with the statement.
- Write A or D in the first column OR if you are not sure whether you agree or disagree, write NS (not sure).

**STEP 2**

**After you complete Chapter 8**

- Reread each statement and complete the last column by entering an A (agree) or a D (disagree).
- Did any of your opinions about the statements change from the first column?
- For those statements that you mark with a D, use a separate sheet of paper to explain why you disagree. Use examples, if possible.

<table>
<thead>
<tr>
<th>Statement</th>
<th>STEP 1 A or D</th>
<th>STEP 2 A or D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When you multiply any number by a multiple of 10, the digit in the ones place of the product is always 5.</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>2. $10 \times 10 = 100$.</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>3. $5 \times 10 = 55$.</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>4. The method used to multiply whole numbers cannot be used to multiply money.</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>5. The word <em>exactly</em> tells you to estimate.</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>6. It is impossible to tell whether an estimate is more or less than the actual product.</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>7. If I have 5 coins that add up to 5¢, then all the coins are nickels.</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>8. If I have 2 coins that add up to 10¢, then all the coins are dimes.</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>9. In the Distributive Property of Multiplication, greater numbers are broken down so that they are easier to compute with.</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>10. 809 rounded to the nearest hundred is 900.</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

### Graphic Organizer

Use this graphic organizer to take notes on Chapter 8: Multiply by Two-Digit Numbers. Fill in the missing information.

<table>
<thead>
<tr>
<th>Vocabulary Term</th>
<th>Definition</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distributive Property of Multiplication</strong></td>
<td>to multiply a sum by a number, multiply each addend by the same number and add</td>
<td>$4 \times (1 + 3) = (4 \times 1) + (4 \times 3) = 16$</td>
</tr>
<tr>
<td><strong>Estimate</strong></td>
<td>a number close to an exact value; about how much</td>
<td>$47 + 22$ (estimate $50 + 20$), about 70</td>
</tr>
<tr>
<td><strong>Multiplication</strong></td>
<td>an operation on two numbers to find their product; repeated addition</td>
<td>$4 \times 3$ is another way to write $3 + 3 + 3 + 3 = 12$</td>
</tr>
<tr>
<td><strong>Product</strong></td>
<td>the answer to a multiplication problem</td>
<td>$7 \times 2 = 14$, 14 is the product</td>
</tr>
<tr>
<td><strong>Round</strong></td>
<td>to change a number to the next nearest; place value</td>
<td>78 can be rounded to 80</td>
</tr>
</tbody>
</table>
**Reteach**

*Multiply by Tens*

Find $355 \times 40$.

**Step 1**

Think in terms of hundreds, tens, and ones. $355 = 3 \text{ hundreds} + 5 \text{ tens} + 5 \text{ ones}.$

**Step 2**

Multiply the ones.

<table>
<thead>
<tr>
<th>355</th>
<th>$\times$</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 tens</td>
<td>$\times$</td>
<td>40</td>
</tr>
<tr>
<td>0 ones</td>
<td>$\times$</td>
<td>40</td>
</tr>
</tbody>
</table>

**Step 3**

Multiply the tens $\times$ the ones.

<table>
<thead>
<tr>
<th>355</th>
<th>$\times$</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 tens</td>
<td>$\times$</td>
<td>4</td>
</tr>
<tr>
<td>0 ones</td>
<td>$\times$</td>
<td>5</td>
</tr>
</tbody>
</table>

Add the regrouped 2 tens.

**Step 5**

Multiply the tens $\times$ the hundreds.

<table>
<thead>
<tr>
<th>355</th>
<th>$\times$</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 tens</td>
<td>$\times$</td>
<td>3</td>
</tr>
<tr>
<td>4 hundreds</td>
<td>$\times$</td>
<td>2</td>
</tr>
</tbody>
</table>

Add the regrouped 200.

**Multiply.**

1. $12 \times 30 = \underline{360}$
2. $21 \times 40 = \underline{840}$
3. $14 \times 60 = \underline{840}$
4. $31 \times 70 = \underline{2,170}$
5. $25 \times 50 = \underline{1,250}$
6. $24 \times 40 = \underline{960}$
7. $61 \times 30 = \underline{1,830}$
8. $48 \times 20 = \underline{960}$
9. $19 \times 30 = \underline{570}$
10. $65 \times 40 = \underline{2,600}$
11. $48 \times 40 = \underline{1,920}$
12. $14 \times 50 = \underline{700}$
13. $49 \times 70 = \underline{3,430}$
14. $42 \times 90 = \underline{3,780}$
15. $80 \times 70 = \underline{5,600}$
16. $26 \times 40 = \underline{1,040}$
17. $17 \times 80 = \underline{1,360}$
18. $135 \times 50 = \underline{6,750}$
19. $207 \times 60 = \underline{12,420}$
20. $399 \times 50 = \underline{19,950}$
21. $756 \times 30 = \underline{22,680}$
22. $375 \times 20 = \underline{7,500}$
23. $409 \times 40 = \underline{16,360}$
24. $490 \times 70 = \underline{34,300}$
25. $967 \times 10 = \underline{9,670}$
26. $975 \times 80 = \underline{78,000}$
27. $549 \times 50 = \underline{27,450}$
28. $105 \times 30 = \underline{3,150}$

**Solve.**

29. Classroom chairs cost $39. How much will it cost to buy 30 chairs? $1,170
30. A computer costs $986. How much will it cost to buy 20 computers? $19,720
Multiply.

1. $51 \times 30 = 1,530$
2. $712 \times 30 = 21,360$
3. $39 \times 80 = 3,120$
4. $116 \times 10 = 1,160$
5. $67 \times 20 = 1,340$
6. $185 \times 80 = 14,800$
7. $325 \times 60 = 19,500$
8. $490 \times 90 = 44,100$
9. $608 \times 40 = 24,320$
10. $111 \times 70 = 7,770$
11. $999 \times 10 = 9,990$
12. $740 \times 50 = 37,000$

Solve.

13. There are 40 rows of lockers. There are 12 lockers in each row. How many lockers are there? 480 lockers
14. Pablo found out that every classroom has 34 desks. There are 30 classrooms. How many desks are in the school? 1,020 desks

Spiral Review

Multiply. (Lesson 7–7)

15. $604 \times 3 = 1,812$
16. $6,005 \times 8 = 48,040$
17. $3,100 \times 9 = 27,900$

Solve.

18. Mr. Sims printed 303 museum trip notices for the students in each grade. The museum trip was for 3 grades. How many notices did he print? 909 notices
19. It costs $5 for each student to enter the museum. How much money did Mr. Sims need for 909 students to enter the museum? $4,545
20. 600 students from another school joined the 909 students who were with Mr. Sims. The museum provided a study guide for each student. The study guides cost the museum $2 each to print. How much did it cost the museum to provide study guides for all of the students? $1,218

Problem-Solving Practice

Multiply by Tens

Solve.

1. Teams of 16 students are helping the town clean the park. There are 20 teams in all. How many students are cleaning the park? 320 students
2. Students are going on a field trip in 10 buses. Each bus carries 35 students. How many students can go on the field trip? 350 students
3. Mr. Parker arranged 1 van for every 12 students to travel to the zoo. A total of 40 vans were needed. How many students went on the trip? 480 vans
4. It cost $14 to buy tickets for each student to go to the petting zoo. Mr. Parker bought tickets for 30 students. How much did the tickets cost? $420
5. The 32 caretakers make sure that all of the animals are checked on each day at the zoo. How many animals are at the zoo if each caretaker checks on 30 animals? 960 animals
6. 27 students run in a charity race to raise money for the zoo. Thirteen of the students each raise $20. The rest of the students each raise $30. How much did the students raise in all? $680
### 8–1 Enrich

**Four-Square**

One multiplication problem appears in each four-square below. Find its product. Then fill up the four-square by writing three more problems that have the same product. Use as many multiples of ten as you can.

<table>
<thead>
<tr>
<th>30 × 500 = 15,000</th>
<th>50 × 300</th>
<th>90 × 6,000 = 540,000</th>
<th>900 × 600</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 × 5,000 = 15,000</td>
<td>5 × 3,000</td>
<td>9 × 60,000 = 540,000</td>
<td>54 × 10,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>350 × 70 = 24,500</th>
<th>7 × 3,500</th>
<th>64 × 800 = 51,200</th>
<th>640 × 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 × 700 = 2,450</td>
<td>10 × 2,450</td>
<td>512 × 100</td>
<td>8 × 6,400</td>
</tr>
</tbody>
</table>

### 8–2 Reteach

**Estimate Products**

You can round to estimate products. Round each factor to its greatest place. Then multiply using patterns with zeros.

Estimate $42 \times 59$. Estimate $74 \times 229$.

| 42 → 40 1 zero | 59 → 60 1 zero | $\times$ 74 → $\times$ 70 1 zero |
| 2,400 2 zeros | 14,000 3 zeros |

Estimate each product by rounding.

1. $54 \rightarrow 50 \times 19 \rightarrow 20 \rightarrow 1,000$
2. $229 \rightarrow 200 \times 32 \rightarrow 30 \rightarrow 900$
3. $788 \rightarrow 800 \times 51 \rightarrow 50 \rightarrow 40,000$

Estimate each product. **Estimates may vary.** Possible answers are given.

4. $37 \times 49 = 2,000$
5. $23 \times 51 = 1,000$
6. $69 \times 19 = 1,400$
7. $26 \times 72 = 2,100$
8. $19 \times 31 = 6,000$
9. $85 \times 263 = 27,000$
10. $70 \times 800 = 56,000$
11. $48 \times 156 = 10,000$
12. $92 \times 228 = 18,000$
## Skills Practice

### Estimate Products

Estimate each product. Sample estimates are given. Accept all reasonable estimates.

1. \(49 \times 59\) \(\approx 3,000\)  
2. \(85 \times 211\) \(\approx 18,000\)  
3. \(55 \times 65\) \(\approx 4,200\)  
4. \(71 \times 29\) \(\approx 2,600\)  
5. \(41 \times 62\) \(\approx 600\)  
6. \(82 \times 30\) \(\approx 2,400\)  
7. \(98 \times 40\) \(\approx 40,000\)  
8. \(82 \times 90\) \(\approx 7,200\)  
9. \(18 \times 29\) \(\approx 600\)  
10. \(29 \times 90\) \(\approx 2,700\)  
11. \(71 \times 87\) \(\approx 63,000\)  
12. \(37 \times 196\) \(\approx 8,000\)  
13. \(61 \times 216\) \(\approx 12,000\)  
14. \(81 \times 350\) \(\approx 32,000\)  
15. \(42 \times 60\) \(\approx 24,000\)  
16. \(82 \times 31\) \(\approx 2,400\)  
17. \(23 \times 99\) \(\approx 20,000\)  
18. \(890 \times 36\) \(\approx 36,000\)

Solve by estimating each product.

21. The price of a bus ticket is $58. About how much will tickets cost for a group of 62 passengers? \(60 \times 60 = \$3,600\)

22. An airline ticket costs $375. About how much will tickets cost for a group of 25 people? \(40 \times 30 = \$1,200\)

23. Michael averages 12 points in each football game. About how many points will he score in 12 games? \(10 \times 10 = 100\) points

24. Rachel creates 14 paintings a month. About how many paintings will she create in 2 years? \(10 \times 20 = 200\) paintings

## Homework Practice

### Estimate Products

Estimate each product. Sample estimates are given. Accept all reasonable estimates.

1. \(37 \times 22\) \(\approx 800\)  
2. \(878 \times 41\) \(\approx 36,000\)  
3. \(49 \times 16\) \(\approx 1,000\)  
4. \(68 \times 22\) \(\approx 1,400\)  
5. \(36 \times 81\) \(\approx 3,200\)  
6. \(714 \times 11\) \(\approx 7,000\)  
7. \(68 \times 22\) \(\approx 1,400\)  
8. \(688 \times 19\) \(\approx 14,000\)  
9. \(36 \times 81\) \(\approx 3,200\)  
10. \(563 \times 29\) \(\approx 18,000\)  
11. \(141 \times 78\) \(\approx 8,000\)

Estimate to solve.

11. The price of a bus ticket is $39. About how much will tickets cost for a group of 58 passengers? \(2,400\)

12. An airline ticket costs $285. About how much will tickets cost for a group of 37 people? \(12,000\)

### Spiral Review

Multiply. (Lesson 8–1)

13. \(35 \times 10\) \(\approx 350\)  
14. \(723 \times 20\) \(\approx 14,460\)  
15. \(58 \times 40\) \(\approx 2,320\)  
16. \(448 \times 40\) \(\approx 17,920\)  
17. \(89 \times 30\) \(\approx 2,670\)  
18. \(58 \times 60\) \(\approx 3,480\)  
19. \(54 \times 80\) \(\approx 4,320\)  
20. \(98 \times 80\) \(\approx 7,840\)  
21. \(43 \times 40\) \(\approx 1,720\)  
22. \(51 \times 50\) \(\approx 2,550\)  
23. \(45 \times 80\) \(\approx 3,600\)  
24. \(663 \times 30\) \(\approx 19,890\)  
25. \(99 \times 90\) \(\approx 8,910\)  
26. \(39 \times 70\) \(\approx 2,730\)  
27. \(75 \times 50\) \(\approx 3,750\)  
28. \(87 \times 20\) \(\approx 1,740\)  
29. \(658 \times 50\) \(\approx 32,900\)  
30. \(52 \times 60\) \(\approx 3,120\)
Problem-Solving Practice

Estimate Products

Sample estimates are given. Accept all reasonable estimates.

1. Each of 32 classrooms has 4 computers. About how many computers are there in all?
   **120 computers**

2. A new keyboard for the computer costs $49. The school is buying 18 keyboards. About how much will they cost?
   **$1,000**

3. There are 42 times for students to work in the computer lab during one week. If 19 students can work in the computer lab at one time, about how many students can work in the computer lab during one week?
   **800 students**

4. The school is buying 28 new computers for the computer lab. One computer costs $812. About how much will all of the computers cost?
   **$24,000**

5. The school district is buying laser printers for 62 schools. Each printer costs $898. About how much will all the printers cost?
   **$54,000**

6. The school district is buying software for virus protection. Each software package costs $48. There are 685 computers all together in the district’s schools. About how much will the software cost?
   **$35,000**

Enrich

Weigh Cool

Rounding is a good way to estimate products when you don’t need a precise answer. First estimate these products and use > or < to show which package weighs more. Then multiply to check your answers.

- 37 tons \times 42 = 1,554 \text{ tons} > 1,200 \text{ tons}
- 56 tons \times 21 = 1,176 \text{ tons} < 1,200 \text{ tons}
- 78 pounds \times 11 = 858 \text{ pounds} > 420 \text{ pounds}
- 42 pounds \times 98 = 4,116 \text{ pounds} < 4,000 \text{ pounds}
- 87 ounces \times 84 = 7,308 \text{ ounces} > 2,100 \text{ ounces}
- 65 ounces \times 33 = 2,145 \text{ ounces} < 2,200 \text{ ounces}
- 57 kilograms \times 59 = 3,363 \text{ kilograms} > 2,400 \text{ kilograms}
- 84 kilograms \times 29 = 2,436 \text{ kilograms} < 2,400 \text{ kilograms}
Reteach

Problem-Solving Strategy

Yolan has 3 bills equaling $20. What combination of $1, $5, $10, $20, or $50 bills does he have?

Understand
Be sure you understand the problem.

What do you know?
• Yolan has 3 bills
• The value of those bills is $20.

What do you need to find?
• You need to find what bills Yolan has.

Plan
Make a plan.

You can act out the problem using play money.

Solve
Use play money to act out different combinations of $20.
Cut out pieces of paper to represent different amounts of money.
Try out different possibilities with the bills.
He could have two $5 bills and one $10 bill.

Check
Is the solution reasonable?
Reread the problem. Check your answer.

Solve. Use the act it out strategy.

1. Rod has 20 coins having the value of $6. What coins does he have?
   Sample answer: 10 fifty-cent pieces, 10 dimes

2. List 3 combinations to create a value of 64 cents.
   Sample answers: 64 pennies; 1 fifty-cent piece, 1 dime, 4 pennies; 2 quarters, 2 nickels, 4 pennies

3. Angie is 8 years old. She is one-fifth her father’s age. How old is her father?
   40 years old

4. You decide to start a business making T-shirts with Joe, Frank, and Eddie. In one day Joe created 6 more than Frank. Frank created 4 less than Eddie. On that day, the total number of T-shirts the boys created was 22. How many shirts did each boy create?
   Joe 10, Frank 4, Eddie 8

5. The boys have $100 to spend. They have a total of four bills. They are either $5, $10, $20, or $50 bills. What combination of bills do they have?
   one $50 bill, two $20 bills, one $10 bill

6. There are 10 people interested in buying shirts. All 10 people unfold and inspect the 22 shirts. After each person unfolds a shirt, Frank folded it again. How many times did Frank refold shirts?
   220 times

7. After selling shirts, the boys had $500 in cash. They had a total of 19 bills. What combination of bills do they have?
   four $50 bills, fifteen $20 bills

8. Eddie figured out that he could cut a large square of fabric into 4 small squares, and each small square was enough for 1 T-shirt. In the end, the boys ruined 2 shirts and had 22 good ones. How many large squares of fabric did they start with?
   6 large squares

9. Leah is 13 years older than Jillian. Jillian is 2 years younger than Steve. If Steve is 11, how old is Leah?
   22 years old
Solve. Use the act it out strategy.

1. Ann is 50. Ann is twice the age of her daughter, Cindy. Cindy's daughter is 20 years younger than her mother. How old is Cindy's daughter?
   **5 years old**

2. Jane is 64 years old and 4 years older than 3 times Linda's age. How old is Linda?
   **20 years old**

3. Jerry has 12 bills equaling $100. ($5, $10, $20, $50) What combination of bills does he have?
   **five $10 bills, one $20 bill, six $5 bills**

4. Fred has 34 coins equaling $3. What combination of coins does he have?
   **4 quarters, 10 dimes, 20 nickels**

5. The Gomez family goes to a symphony concert. They buy 1 adult ticket at $15.75 and 3 youth tickets at $9.98. How much does the Gomez family spend for tickets?
   **$45.69**

6. There are 30 students in the lunch line. On the shelf there are an equal number of 5 different kinds of drinks. If there are 30 drinks on the shelf, how many people will have the same kind of drink?
   **6 people**

---

**Spiral Review**

7. 26 × 3 = 90
8. 478 × 41 = 20,000
9. 23 × 7 = 140
10. 850 × 12 = 9,000
11. 78 × 32 = 2,400
12. 618 × 19 = 12,000
13. 96 × 11 = 1,000
14. 275 × 29 = 9,000
15. 211 × 5 = 1,000
16. 325 × 52 = 15,000

17. Circle all of the numbers on this page that are multiples of tens. See students' work.

---

**Homework Practice**

**Problem-Solving Strategy**

Solve. Use the act it out strategy.

1. The Diving Club offers 4 beginning diving classes each day. Each class has room for 6 people. How many people can take classes in 30 days?
   **720 people**

2. A fishing guide charges $25 per hour. He works 6 hours per day for 5 days. How much money does the guide earn?
   **$750**

3. During one week, 5 sailboats are rented for a total of 16 hours each. The rental cost is $25 per hour. Altogether, how much is paid for these rentals?
   **$2,000**

4. The aquarium charges $12 admission and $6 for a tour. A group of 20 people goes to the aquarium and takes the tour. How much money does the group spend?
   **$360**

5. Amanda rents a canoe and a life preserver from 2:00 P.M. to 5:00 P.M. A canoe costs $12 per hour. A life preserver costs $2 per hour. How much does Amanda spend?
   **$42**

6. Jenny rented a rowboat for 2 hours in the morning. After lunch, she rented another rowboat for 3 hours. For how many minutes did she rent the boat?
   **300 minutes**

---

**Estimate each product. (Lesson 8–2)**

Sample estimates are given. Accept all reasonable estimates.

7. 78 × 32 = 2,400
8. 850 × 12 = 9,000
9. 618 × 19 = 12,000
10. 275 × 29 = 9,000
11. 325 × 52 = 15,000
Almost 2,000 kids went to Camp Guthrie last summer—884 boys and 965 girls. Most of them bought clothes at the Guthrie Gift Shop.

Write three questions you can ask and answer by multiplying.

1. Answers will vary. For example: How much would be spent by all the girls if they each bought a pair of shorts?
   
   \[35 \times 965 = 33,775.00\]

2. Add 3 items to the Guthrie Gift Shop price list. Create two more questions that you can ask and answer by multiplying. Be sure to use the new items in your questions!

3. Trade with a partner to check each other’s work.

Find \(36 \times 26\).

Estimate: \(40 \times 30 = 1,200\)

\[\begin{array}{c}
\text{Step 1} \\
3 \\
3 \quad 6 \\
\times 2 \\
\hline
2 \quad 1 \quad 6
\end{array}\]

\[\begin{array}{c}
\text{Step 2} \\
1 \\
3 \quad 6 \\
\times 2 \\
\hline
2 \quad 1 \quad 6 \\
7 \quad 2 \quad 0 \quad 6 \times 3 \quad 6 \\
\hline
9 \quad 3 \quad 6
\end{array}\]

\[\begin{array}{c}
\text{Step 3} \\
1 \\
3 \quad 6 \\
\times 2 \\
\hline
2 \quad 1 \quad 6 \\
7 \quad 2 \quad 0 \quad 6 \times 3 \quad 6 \\
\hline
9 \quad 3 \quad 6
\end{array}\]

Multiply.

1. \(14 \times 22 = 308\)
2. \(30 \times 13 = 390\)
3. \(42 \times 17 = 714\)
4. \(30 \times 24 = 720\)
Skills Practice

Multiply Two-Digit Numbers

Multiply.

1. 36
   \[ \times 12 \]
   432

2. 45
   \[ \times 35 \]
   1,575

3. 31
   \[ \times 25 \]
   775

4. 27
   \[ \times 41 \]
   1,107

5. 48
   \[ \times 20 \]
   960

6. 12
   \[ \times 46 \]
   552

7. 38
   \[ \times 14 \]
   532

8. 38
   \[ \times 27 \]
   1,026

9. 36
   \[ \times 36 \]
   1,296

10. 23
    \[ \times 22 \]
    506

11. 32
    \[ \times 35 \]
    910

12. 28
    \[ \times 47 \]
    1,306

13. 49
    \[ \times 13 \]
    637

14. 45
    \[ \times 25 \]
    1,125

15. 16
    \[ \times 40 \]
    640

16. 47
    \[ \times 34 \]
    1,598

17. 14
    \[ \times 15 \]
    210

18. 17
    \[ \times 17 \]
    289

19. 46
    \[ \times 14 \]
    644

20. 26
    \[ \times 34 \]
    884

21. 37
    \[ \times 26 \]
    962

22. 17
    \[ \times 25 \]
    425

23. 32
    \[ \times 18 \]
    576

24. 19
    \[ \times 27 \]
    513

Spiral Review

Solve. (Lesson 8–3)

19. George had 3 fewer basketball cards yesterday than he does today. Yesterday he had 9 basketball cards. How many basketball cards does George have today? 12 cards

20. Judy, Lakesha, and Tina each like a different color, either red, green, or blue. Judy likes green. Tina does not like blue. What color does Lakesha like? blue
Problem-Solving Practice
Multiply Two-Digit Numbers

Solve.

1. There are 15 students in each school club. There are 20 clubs in all. How many students are in all of the clubs? Multiply. Tell which method you used.
   **300 students; methods used will vary.**

2. There are 15 students in the art club. By the end of the school year, each student had made 23 pictures. How many pictures did the students make in all? Multiply. Tell which method you used.
   **345 pictures; methods used will vary.**

3. The fourth-grade students at Tremont School receive a ribbon if they read 50 books during the school year. There are 69 ribbons given out at the end of the year. How many books did the students read in all? Multiply. Tell which method you used.
   **3,450 books; methods used will vary.**

4. There are 27 students in Mr. Jacob’s class. By the end of the school year, each student will have completed 72 tasks on the class schedule. How many tasks will have been completed? Multiply. Tell which method you used.
   **1,944 tasks; methods used will vary.**

5. The town’s camera store bought 98 cameras for school photography clubs to use. Each camera cost $57. How much did the cameras cost in all? Multiply. Tell which method you used.
   **$5,586; methods used will vary.**

6. There are 35 students in the photography club at Columbus School. Each student was given enough rolls of film to take 72 photos. How many photos did the students take in all? Multiply. Tell which method you used.
   **2,520 photos; methods used will vary.**

Enrich
Fill the Grid

Use a number cube to roll the top two numbers for each multiplication problem in the grid. Trade with a partner to check each other’s work.

**Answers will depend on the numbers rolled.**

<table>
<thead>
<tr>
<th>× 14</th>
<th>× 35</th>
<th>× 62</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>× 53</th>
<th>× 89</th>
<th>× 71</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>× 27</th>
<th>× 94</th>
<th>× 56</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Find $411 \times 12$.  
Estimate: $400 \times 10 = 4,000$

**Step 1** Multiply the ones. $411 \times 2$

$$
\begin{array}{c}
  411 \\
  \times 12 \\
  \hline \\
  822 \\
\end{array}
$$

**Step 2** Multiply the tens. $411 \times 10$

Remember, a zero is in the ones place when you multiply the tens.

$$
\begin{array}{c}
  411 \\
  \times 10 \\
  \hline \\
  4110 \\
\end{array}
$$

**Step 3** Add the products. $822 + 4110$

$$
\begin{array}{c}
  411 \\
  \times 12 \\
  \hline \\
  822 \\
  \hline \\
  4110 \\
  \hline \\
  4932 \\
\end{array}
$$

**Solve.**

1. $419 \times 24 = 10,056$
2. $553 \times 36 = 19,908$
3. $245 \times 26 = 6,370$
4. $339 \times 74 = 25,086$
5. $153 \times 75 = 11,475$
6. $414 \times 48 = 19,872$
7. $463 \times 22 = 10,186$
8. $202 \times 23 = 4,646$
9. $218 \times 90 = 19,620$
10. $186 \times 80 = 14,880$
11. $350 \times 61 = 21,350$
12. $727 \times 31 = 22,537$
13. $247 \times 35 = 8,645$
14. $643 \times 57 = 36,651$
15. $668 \times 44 = 29,392$
16. $915 \times 29 = 26,535$

**Solve.**

21. Ali’s mom said for every 20 hours Ali worked, she would earn $150. After Ali worked 40 hours, how much did she earn? $300$

22. Patti’s heart beats 125 times in a minute. How many times does her heart beat in an hour? $7,500$ times
Multiply Three-Digit Numbers by Two-Digit Numbers

Multiply.

1. 185 \times 18 = 3,330
2. 152 \times 83 = 12,616
3. 525 \times 63 = 33,075
4. 467 \times 81 = 37,827
5. 342 \times 25 = 8,550
6. 648 \times 92 = 59,937
7. 297 \times 36 = 10,702
8. 412 \times 27 = 11,114
9. 738 \times 19 = 14,022
10. 521 \times 52 = 27,292
11. 417 \times 23 = 9,651
12. 643 \times 26 = 16,718
13. 950 \times 48 = 45,600
14. 311 \times 11 = 3,421
15. 322 \times 35 = 11,270
16. 229 \times 45 = 10,305
17. 161 \times 78 = 12,758
18. 738 \times 22 = 16,236
19. 120 \times 42 = 5,040
20. 620 \times 33 = 20,460

Spiral Review

Multiply. (Lesson 8–4)

21. 25 \times 62 = 1,550
22. 19 \times 38 = 722
23. 95 \times 82 = 7,970
24. 22 \times 17 = 374
25. 85 \times 21 = 1,785
26. 49 \times 11 = 539
27. 62 \times 45 = 2,790
28. 79 \times 63 = 4,977
29. 38 \times 26 = 988
30. 45 \times 18 = 810
31. 75 \times 63 = 6,375
32. 66 \times 27 = 1,782
33. 92 \times 37 = 3,404
34. 42 \times 79 = 3,318
35. Look back at exercises 21–34 and circle all factors that are multiples of 5.

Problem-Solving Practice

Multiply Three-Digit Numbers by Two-Digit Numbers

Solve.

1. Each art class uses 231 pipe cleaners for a project. How many pipe cleaners will 15 classes use? Multiply. Check that the answer is reasonable.
   \[ 3,465 \text{ pipe cleaners} \]

   \[ $4,444 \]

3. Each week, 989 cars drive through the wildlife park. How many cars drive through the park in 24 weeks? Multiply. Check that the answer is reasonable.
   \[ 23,736 \text{ cars} \]

4. A classroom set of books about space exploration costs $234. There are 16 classes. How much will books for all of the classes cost? Multiply. Check that the answer is reasonable.
   \[ $3,744 \]

5. The tile crew can lay 878 tiles in one day. How many tiles can the crew lay in 62 days? Multiply. Check that the answer is reasonable.
   \[ 54,436 \text{ tiles} \]

6. There are 981 floor tiles in one classroom in the school. How many floor tiles will it take to replace the tiles in 28 classrooms? Multiply. Check that the answer is reasonable.
   \[ 27,468 \text{ tiles} \]
Fill in the missing digits in the multiplication problems below.

1. \[
\begin{array}{c}
837 \\
\times 42 \\
\hline
3348 \\
35154
\end{array}
\]

2. \[
\begin{array}{c}
672 \\
\times 38 \\
\hline
2016 \\
2536
\end{array}
\]

3. \[
\begin{array}{c}
914 \\
\times 56 \\
\hline
5484 \\
4570 \\
51184
\end{array}
\]

4. \[
\begin{array}{c}
525 \\
\times 71 \\
\hline
525 \\
3675 \\
37275
\end{array}
\]

5. \[
\begin{array}{c}
486 \\
\times 75 \\
\hline
2430 \\
3402 \\
36450
\end{array}
\]

6. \[
\begin{array}{c}
395 \\
\times 28 \\
\hline
3160 \\
790 \\
11060
\end{array}
\]

Enrich

Digit Detective

Mandy went shopping. Her mother gave her a bank card to use and told her that she could not spend more than $200. Mandy spent $56 in the first store, $87 in the next, then $95, and finally $103. When she got home, Mandy told her mother that she wasn’t sure but thought she stayed under $200. Does this make mathematical sense?

Understand
Be sure you understand the problem.
What do you know?
- Mandy has a limit of $200.
- She spent $56, $87, $95, and $103.
What do you need to find?
- You need to find if Mandy stayed within her limit.

Plan
Make a plan.
You can use the make a table strategy to find how much Mandy spent. You can estimate the amount Mandy spent at each store and place the amounts in the table.

<table>
<thead>
<tr>
<th>Store #1</th>
<th>Store #2</th>
<th>Store #3</th>
<th>Store #4</th>
</tr>
</thead>
<tbody>
<tr>
<td>$56</td>
<td>$87</td>
<td>$95</td>
<td>$103</td>
</tr>
</tbody>
</table>

Solve
$56 + $87 + $95 + $103 = $341
$341 − $200 = $141
So, Mandy spent $141 over her $200 limit.

Check
Is the solution reasonable?
Reread the problem.
Check your answer.

Solve and tell what strategies you used.
1. Sandy spent $459 on gifts. She spent about $50 on each person. How many people did she buy gifts for?
   estimate, work backward; 9 people
2. Caitlin, Erin, and Jeannie are on the track team. Over the season, Caitlin won 2 times and came in second 2 times. Erin won 1 time and came in second 5 times. Jeannie did not win at all, but came in second 8 times. The runners earn 10 points for winning and 5 points for coming in second. Who got the most points this season? make a chart, use multiplication and addition; Jeannie had the most points.

3. Kyle is 4,000 days old. About how many years old is he? estimate; about 10 years old.

4. Hao solved the following problem. \(42 \times 37 = 1,554\) Explain how Hao could check his answer. work backward; Hao could divide 1,554 by 37 to get 42. He could also divide 1,554 by 42 to get 37. Hao’s answer is correct.

5. At a store, jeans are on sale for $32 and sweaters are on sale for $28. How much will it cost Mrs. Jackson to buy 3 pairs of jeans and 4 sweaters for her children? $208

6. Carmen bought 5 dozen muffins for her class. Each student got 2 muffins. Estimate how many people are in Carmen’s class and explain your answer. choose an operation; 30 students.

7. Every teacher at Mountain Elementary is provided 800 sheets of paper. How many sheets of paper do the 50 teachers have altogether? 40,000 sheets of paper

8. Isra is thinking of two numbers that have a sum of 7 and a product of 10. What are the two numbers? 4-Step Plan; Isra is thinking of 5 and 2.
Homework Practice
Problem-Solving Investigation

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

1. It costs $216 to buy 24 tickets to the water park. How much does each ticket cost? Tell which method you used. **$9; Methods will vary. Accept any reasonable choice.**

2. There are 156 beads. They are divided into 12 equal groups. How many beads are in each group? Tell which method you used. **13 beads; Methods will vary. Accept any reasonable choice.**

3. For a long-distance race, $175 was collected from each of 9 runners. How much was collected in all? Tell which method you used. **$1,575; Methods will vary.**

4. For a bicycle race, there are 432 cyclists. Each cyclist paid $12 to enter the race. How much money did the cyclists pay in all? Tell which method you used. **$5,184; Methods will vary. Accept any reasonable choice.**

5. The owner of the hobby store pays $92 for an order of 23 model car kits. How much does each model car kit cost? Tell which method you used. **$4; Methods will vary. Accept any reasonable choice.**

6. There were 200 model car kits delivered to the hobby store. They were packed in 25 boxes. How many model car kits were in each box? Tell which method you used. **8 model car kits; Methods will vary. Accept any reasonable choice.**

Spiral Review

Multiply. (Lesson 8–5)

7. $801 \times 86 = 68,866$
8. $631 \times 12 = 7,572$
9. $511 \times 59 = 30,149$
10. $775 \times 24 = 18,600$
11. $362 \times 42 = 15,204$
12. $933 \times 96 = 89,568$
13. $339 \times 33 = 11,187$
14. $460 \times 71 = 32,660$
15. $823 \times 69 = 56,787$

Enrich
Napier’s Bones

In the 17th century, John Napier invented a simple calculator that multiplied by adding. Use Napier’s Bones to find $49 \times 37$.

1. Cut out the ten strips below. Place the 4, 9, and index strips next to each other.
2. Fold the strips so that rows 3 and 7 of the index are next to each other. See how the diagonal lines form a pattern of diagonal columns.
3. To find the product, add the numbers along the diagonal columns starting from the bottom right. The first diagonal (3) is the ones digit. The next diagonal ($7 + 6 + 8 = 21$) is the tens. Write 1 under the tens column and regroup 2 to the next diagonal. Add the next diagonal, $2 + 2 + 2 + 8 = 14$, for the hundreds. The last diagonal (1) is the thousands. So, the product of $49 \times 37$ is 1,813.

Use the strips to find each product.

1. $57 \times 34 = 1,938$
2. $61 \times 76 = 4,636$
3. $85 \times 29 = 2,465$
4. $32 \times 33 = 1,056$
5. $94 \times 65 = 6,110$
6. $56 \times 48 = 2,688$
Reteach

Multiply Greater Numbers

Find 4,263 \times 43.
Estimate: 4,000 \times 40 = 160,000

Step 1 Multiply the ones. Regroup if necessary. Cross out the amount you regroup when you add it.

\[
\begin{array}{c}
\hline
1 & 4,263 \\
\times & 43 \\
12,789 & 4,263 \times 3 \\
\hline
\end{array}
\]

Step 2 Multiply the tens. Remember, a zero is in the ones place when you multiply the tens.

\[
\begin{array}{c}
\hline
1 & 2 & 1 & 1 \\
\times & 43 \\
12,789 & 4,263 \times 3 \\
170,520 & 4,263 \times 40 \\
\hline
\end{array}
\]

Step 3 Add.

\[
\begin{array}{c}
1 & 2 & 1 \\
1 \\
4,263 \\
\times & 43 \\
12,789 & 4,263 \times 3 \\
170,520 & 4,263 \times 40 \\
\hline
183,309
\end{array}
\]

Multiply.

1. 1,435 \times 45 = \text{64,575} \\
2. 6,901 \times 38 = \text{262,238} \\
3. 7,468 \times 31 = \text{231,508} \\
4. 5,297 \times 12 = \text{63,564} \\
5. 8,488 \times 24 = \text{202,752} \\

\[\text{Multiply.}\]

1. 693 \times 24 = \text{16,632} \\
2. 601 \times 33 = \text{19,833} \\
3. 8,072 \times 58 = \text{468,176} \\
4. 907 \times 25 = \text{22,675} \\
5. 2,901 \times 42 = \text{121,842} \\
6. 3,888 \times 64 = \text{248,832} \\
7. 16 \times 2,369 = \text{37,904} \\
8. 39 \times 1,288 = \text{50,232} \\
9. 65 \times 19,091 = \text{1,240,915} \\
10. 78 \times 12,967 = \text{1,011,426} \\

ALGEBRA Complete the table.

\[
\begin{array}{c|c|c|c|c|c}
\text{Input} & 12 & 15 & 18 & 21 & 24 \\
\hline
\text{Output} & 48 & 60 & 72 & 84 & 96 \\
\end{array}
\]

Solve.

12. Maria and Natalie made 12 trips between New York City and Los Angeles. Each trip cost $598 per person. How much did the 12 trips cost?
\[\$14,352\]

13. A company buys 18 computers. Each computer costs $2,245. How much does the company spend on the 18 computers?
\[\$40,410\]
Multiply.

1. \(1,560 \times 27 = 42,120\)
2. \(5,883 \times 39 = 229,437\)
3. \(3,442 \times 54 = 186,648\)
4. \(16,846 \times 21 = 353,776\)
5. \(6,251 \times 32 = 200,032\)
6. \(51,067 \times 40 = 2,042,680\)
7. \(3,166 \times 21 = 66,682\)
8. \(40,724 \times 32 = 1,303,168\)
9. \(4,351 \times 67 = 291,517\)
10. \(25,331 \times 48 = 1,215,888\)
11. \(2,909 \times 44 = 127,996\)
12. \(37,550 \times 38 = 1,426,900\)

13. Antonio runs 2 miles a day. In one mile there is 5,280 feet. How many feet does he run in 2 weeks? \(147,840\) feet
14. If a panda bear eats 84 pounds of fresh bamboo sprouts every day, how many pounds of bamboo do 12 pandas eat in two weeks? \(14,112\) pounds of fresh bamboo sprouts

15. There are 2,734 miles between Seattle, Washington and Miami, Florida. If Consuelo travels round trip from Miami to Seattle 6 times, how many miles does she travel altogether? \(32,808\) miles

Spiral Review

Solve. (Lesson 8–6)

16. Brady is counting the money in his piggy bank. He has $0.56. He has 3 kinds of coins and 3 coins in all. What coins does he have? 4 dimes, 3 nickels, and 1 penny.
17. Sara is thinking of two numbers that have a sum of 15 and a product of 56. What are the two numbers? Sara is thinking of 7 and 8.
18. Marc has 15 trophies. Four of the trophies are for track. He has two times as many swimming trophies as track trophies. The rest of the trophies are for soccer. How many soccer trophies does he have? 3 soccer trophies

Solve. (Lesson 8–7)

1. Jamie travels 3,056 miles each year. How many miles does Jamie travel in 15 years? \(45,840\) miles
2. Fourteen members of the crafts club are making necklaces. It takes 202 beads to make each necklace. How many beads will they need if they each make 5 necklaces? \(14,140\) beads
3. An elephant weighs 13,500 pounds. How much would 25 elephants the same size weigh all together? \(337,500\) pounds
4. Jason is taking a bus to visit his grandparents. The bus trip is 113 miles each way. How many miles will Jason travel to and from his grandparents’ house? \(113 \times 2 = 226\) miles
5. Jack is a pilot for a large airline. He plans on retiring in 11 years. Every week, he follows the same schedule of flights. He knows that he flies 78,434 miles each year. How many miles will he fly before he retires? \(862,774\) miles
6. The city parks commission wants to build a new park. The model has 6 tennis courts. Each tennis court will cost $92,378. The city does not want to pay more than $550,000 for all 6 courts. How much will the tennis courts cost? \$554,268\) Will the city be able to build all of them? no
Enrich

Eight Million or More

Using the digits 3, 4, 5, 6, 7, 8, and 9, write at least 5 multiplication problems with a product of eight million or more. You may not use the same digit more than once in the same problem. Multiply to check your answers.

For example:
96,543 × 87 = 8,399,241
87,543 × 96 = 8,404,128
9,654 × 873 = 8,427,942
9,734 × 865 = 8,419,910
9,743 × 865 = 8,427,695

Using the same digits (3, 4, 5, 6, 7, 8, and 9), write at least 5 numbers that round to six million. Round to check your answers.

For example:
6,345,987, 5,783,469, 5,983,467, 6,435,789, 5,836,749

Now, create a problem for a partner.

Choose seven digits ___ ___ ___ ___ ___ ___ ___

Create a question. For example, write at least 5 addition problems with a sum less than four million.

Answers will vary

Trade with a partner, and complete each other’s problems.

Enrich

Vocabulary Test

Match each word to its definition. Write your answers on the lines provided.

1. Distributive Property of Multiplication D
   A. The answer to a multiplication problem.

2. estimate E
   B. To change the value of a number to one that is easier to work with. To find the nearest value of a number based on a given place value.

3. multiplication F
   C. The numbers 0, 1, 2, 3, and 4.

4. product A
   D. The property that states that to multiply a sum by a number, you can multiply each addend by the same number and add the products.

5. round B
   E. A number close to an exact value.

6. whole number C
   F. An operation on two numbers to find their product. It can be thought of as repeated addition.
For this activity you will need 30 counting blocks. Put 10 blocks in a row to make a line of blocks. Read each question aloud to the student. Then write the student’s answers on the lines below the question.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How many blocks are in the row?</td>
<td>10</td>
</tr>
<tr>
<td>2. If you multiplied the number of blocks by 2, how many blocks would you have?</td>
<td>10 more blocks</td>
</tr>
<tr>
<td>3. Tell how you got your answer.</td>
<td>10 × 2 = 20</td>
</tr>
<tr>
<td>4. If you stacked 10 more blocks on top, how many blocks would there be?</td>
<td>10 × 3 = 30</td>
</tr>
<tr>
<td>5. If you divided those 30 blocks in half, how many blocks would be in each group?</td>
<td>15</td>
</tr>
<tr>
<td>6. Instead of stacking the blocks in groups of ten, how could you stack them in even rows?</td>
<td>Sample answer: 2 rows of 15 blocks</td>
</tr>
</tbody>
</table>

**Average Amount of Foods Eaten by a Person Each Year**

<table>
<thead>
<tr>
<th>Food</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandwiches</td>
<td>58</td>
</tr>
<tr>
<td>Chips</td>
<td>75</td>
</tr>
</tbody>
</table>

Use the chart above to answer the following questions:

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. How many orders of chips would a person eat over 3 years?</td>
<td>225 orders of chips</td>
</tr>
<tr>
<td>9. Prove your answer.</td>
<td>75 × 3 = 225</td>
</tr>
<tr>
<td>10. What is the rounded amount of sandwiches a person eats in a year?</td>
<td>60</td>
</tr>
<tr>
<td>11. Tell how you got your answer.</td>
<td>58 is closer to 60 than 50, so it rounds up to 60.</td>
</tr>
<tr>
<td>12. About how many sandwiches would a person eat over 10 years?</td>
<td>600 sandwiches</td>
</tr>
<tr>
<td>13. Explain your answer.</td>
<td>58 rounds to 60. 60 × 10 = 600</td>
</tr>
<tr>
<td>14. Explain your answer.</td>
<td>58 rounds to 60. 60 × 10 = 600</td>
</tr>
</tbody>
</table>

**Average Amount of Foods Eaten by a Person Each Year**

<table>
<thead>
<tr>
<th>Food</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandwiches</td>
<td>58</td>
</tr>
<tr>
<td>Chips</td>
<td>75</td>
</tr>
</tbody>
</table>
### Chapter 8 Assessment Answer Key

#### Chapter Diagnostic Assessment

**Page 44**

1. 500
2. 3,200
3. 80,000
4. 967,000
5. \(n = 1,328\)
6. \(n = 4,558\)
7. \(n = 47,611\)
8. \(n = 771,679\)
9. 18
10. 35
11. 120
12. 268
13. 240
14. 129

#### Chapter Pretest

**Page 45**

1. 7,760
2. 420
3. 378
4. 1,440
5. $2,928
6. $1,620
7. 630
8. 73,073


9. About 1,400,000
10. About 27,000
11. About $800,000
12. About 600,000
13. About 4,000,000
14. $2,000,000
15. 4,320
16. 1,560

#### Quiz 1

**Page 46**

1. 480
2. 4,900
3. $22,520
4. 1,980
5. $2,460
6. $1,400; greater
7. $21,000; greater
8. 1,200; less
9. 6,300; greater
10. 4,800; less

(continued on the next page)
Chapter 8 Assessment Answer Key

Quiz 2
Page 47

1. 414
2. $1,296
3. $3,888
4. 484
5. 2,961
6. $1,216
7. 2 quarters, 2 dimes, 3 nickels
8. 6
9. Ko, Will, Randy, Tessa
10. 12

Quiz 3
Page 48

1. 5,412
2. 54,945
3. 361,491
4. 371,896
5. 671,253
6. $19,152
7. $87,029
8. 1,200 times
9. $7.77
10. 20 and 8

Mid-Chapter Review
Page 49

1. C
2. J
3. A
4. F
5. C
6. 3,000; less
7. 10,000; greater
8. 2,400; greater
9. 6
10. 17
Chapter 8 Assessment Answer Key

Form 1
Page 55
1. C
2. H
3. D
4. J
5. D
6. F
7. D
8. H
9. B
10. F
11. C

Page 56
12. G
13. C
14. J
15. A
16. F
17. B
18. F
19. B

Form 2A
Page 57
1. B
2. J
3. D
4. H
5. B
6. H
7. D
8. F
9. D
10. F
11. D

(continued on the next page)
# Chapter 8 Assessment Answer Key

<table>
<thead>
<tr>
<th>From 2A (continued)</th>
<th>From 2B</th>
<th>Page 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page 58</td>
<td>Page 59</td>
<td></td>
</tr>
<tr>
<td>12. <strong>G</strong></td>
<td>1. <strong>B</strong></td>
<td>13. <strong>A</strong></td>
</tr>
<tr>
<td>13. <strong>D</strong></td>
<td>2. <strong>H</strong></td>
<td>14. <strong>H</strong></td>
</tr>
<tr>
<td>14. <strong>G</strong></td>
<td>3. <strong>A</strong></td>
<td>15. <strong>A</strong></td>
</tr>
<tr>
<td>15. <strong>A</strong></td>
<td>4. <strong>G</strong></td>
<td>16. <strong>G</strong></td>
</tr>
<tr>
<td>16. <strong>G</strong></td>
<td>5. <strong>B</strong></td>
<td>17. <strong>B</strong></td>
</tr>
<tr>
<td>17. <strong>A</strong></td>
<td>6. <strong>J</strong></td>
<td></td>
</tr>
<tr>
<td>18. <strong>H</strong></td>
<td>7. <strong>C</strong></td>
<td></td>
</tr>
<tr>
<td>19. <strong>C</strong></td>
<td>8. <strong>G</strong></td>
<td></td>
</tr>
<tr>
<td>20. <strong>H</strong></td>
<td>9. <strong>C</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. <strong>F</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11. <strong>C</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12. <strong>J</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**From 2A** (continued)  
**Page 58**  
12. **G**  
13. **D**  
14. **G**  
15. **A**  
16. **G**  
17. **A**  
18. **H**  
19. **C**  
20. **H**
Chapter 8 Assessment Answer Key

Form 2C
Page 61

1. 35,000
2. 1,680
3. 480 boxes
4. 175
5. 2,838
6. 180,000
7. 27,060
8. 3,772
9. 160,000
10. 194,460

Form 2D
Page 62

11. 2,414
12. 360,000
13. 7,644
14. 355,920
15. 2,914
16. 270,000
17. 1,580
18. 945
19. 186
20. $60

Form 2D
Page 63

1. 20,000
2. 1,340
3. 1,920 markers
4. 120
5. 1,218
6. 160,000
7. 27,660
8. 2,457
9. 250,000
10. 366,120

(continued on the next page)
## Chapter 8 Assessment Answer Key

<table>
<thead>
<tr>
<th>Form 2D (continued)</th>
<th>Form 3</th>
<th>Page 66</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Page 64</strong></td>
<td><strong>Page 65</strong></td>
<td></td>
</tr>
<tr>
<td>11. <strong>3,886</strong></td>
<td>1. <strong>$4,380</strong></td>
<td>15. <strong>$1,246</strong></td>
</tr>
<tr>
<td></td>
<td>2. <strong>250,000</strong></td>
<td></td>
</tr>
<tr>
<td>12. <strong>420,000</strong></td>
<td>3. <strong>70,000</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. <strong>490,000</strong></td>
<td></td>
</tr>
<tr>
<td>13. <strong>4,131</strong></td>
<td>5. <strong>$1,600</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. <strong>14 years</strong></td>
<td><strong>$78</strong></td>
</tr>
<tr>
<td>14. <strong>250,560</strong></td>
<td>7. <strong>old</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>four <strong>$20</strong></td>
<td>16. <strong>$10,580</strong></td>
</tr>
<tr>
<td>15. <strong>5,452</strong></td>
<td>bills, two</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>$10</strong> bills</td>
<td>7. <strong>492</strong></td>
</tr>
<tr>
<td>16. <strong>200,000</strong></td>
<td>8. <strong>1,904</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. <strong>14,875</strong></td>
<td></td>
</tr>
<tr>
<td>17. <strong>4,200</strong></td>
<td>10. <strong>9,932</strong></td>
<td></td>
</tr>
<tr>
<td>18. <strong>1,218</strong></td>
<td>11. <strong>1,653,704</strong></td>
<td></td>
</tr>
<tr>
<td>19. <strong>108</strong></td>
<td>12. <strong>174,135</strong></td>
<td></td>
</tr>
<tr>
<td>20. <strong>$67</strong></td>
<td>13. <strong>588,225</strong></td>
<td></td>
</tr>
</tbody>
</table>

2–4; Sample estimates are given. Accept all reasonable estimates.
## Scoring Rubric

<table>
<thead>
<tr>
<th>Level</th>
<th>Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>The student demonstrates a <strong>thorough understanding</strong> of the mathematics concepts and/or procedures embodied in the task. The student has responded correctly to the task, used mathematically sound procedures, and provided clear and complete explanations and interpretations. The response may contain minor flaws that do not detract from the demonstration of a thorough understanding.</td>
</tr>
<tr>
<td>3</td>
<td>The student demonstrates an <strong>understanding</strong> of the mathematics concepts and/or procedures embodied in the task. The student’s response to the task is essentially correct with the mathematical procedures used and the explanations and interpretations provided demonstrating an essential but less than thorough understanding. The response may contain minor errors that reflect inattentive execution of the mathematical procedures or indications of some misunderstanding of the underlying mathematics concepts and/or procedures.</td>
</tr>
<tr>
<td>2</td>
<td>The student has demonstrated only a <strong>partial understanding</strong> of the mathematics concepts and/or procedures embodied in the task. Although the student may have used the correct approach to obtaining a solution or may have provided a correct solution, the student’s work lacks an essential understanding of the underlying mathematical concepts. The response contains errors related to misunderstanding important aspects of the task, misuse of mathematical procedures, or faulty interpretations of results.</td>
</tr>
<tr>
<td>1</td>
<td>The student has demonstrated a <strong>very limited understanding</strong> of the mathematics concepts and/or procedures embodied in the task. The student’s response to the task is incomplete and exhibits many flaws. Although the student has addressed some of the conditions of the task, the student reached an inadequate conclusion and/or provided reasoning that was faulty or incomplete. The response exhibits many errors or may be incomplete.</td>
</tr>
<tr>
<td>0</td>
<td>The student has provided a <strong>completely incorrect</strong> solution or uninterpretable response, or no response at all.</td>
</tr>
</tbody>
</table>
In addition to the scoring rubric found on page A27, the following sample answers may be used as guidance in evaluating open-ended assessment items.

1. The problem $69 \times 20$ does not belong with the other 3 because the product is a 4 digit number. The other 3 problems result in a 3 digit number.

2. The word “about” in a problem gives the hint to estimate because an exact answer is not needed.
   a. You estimate a product by rounding each factor to its greatest place.

3. Step 1:
   I know that Sonya has 5 coins.
   I know that the value of the coins is $0.75.
   I need to find out what coin combination she has.

   Step 2:
   I will use coins to act out different combinations of $0.75.$

   Step 3:
   One way to make $0.75$ is with 3 quarters. But with that combination, there are only 3 coins. I need 2 more coins.
   
   Another way to make $0.75$ is with 2 quarters, 2 dimes and 1 nickel. That combination includes 5 coins.
   
   So, Sonya has 2 quarters, 2 dimes and 1 nickel.

   Step 4:
   I will check my work.
   
   In looking back at the problem, the answer makes sense for the problem. So, the answer is correct.
Chapter 8 Assessment Answer Key

1. B
2. F
3. D
4. H
5. D
6. H
7. B
8. G
9. C
10. G
11. 600
12. 144 chairs
13. 5
14. 9 pages
15. $476
16. about 6 books a week