Name _____

Multiply Using Expanded Form

COMMON CORE STANDARD CC.4.NBT.5

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Record the product. Use expanded form to help.

1. $7 \times 14 =$ 98

$7 \times 14 = 7 \times (10 + 4)$

$= (7 \times 10) + (7 \times 4)$

$= 70 + 28$

$= 98$

2. $8 \times 43 =$ _____

3. $6 \times 532 =$ _____

4. $5 \times 923 =$ _____

5. $4 \times 2{,}371 =$ _____

6. $7 \times 1{,}829 =$ _____

Problem Solving REAL WORLD

7. The fourth-grade students at Riverside School are going on a field trip. There are 68 students on each of the 4 buses. How many students are going on the field trip?

_____

8. There are 5,280 feet in one mile. Hannah likes to walk 5 miles each week for exercise. How many feet does Hannah walk each week?

_____

TEST PREP

Lesson Check (CC.4.NBT.5)

1. Which expression shows how to multiply 7×256 by using expanded form and the Distributive Property?

   Ⓐ $(7 \times 2) + (7 \times 5) + (7 \times 6)$

   Ⓑ $(7 \times 200) + (7 \times 500) + (7 \times 600)$

   Ⓒ $(7 \times 2) + (7 \times 50) + (7 \times 600)$

   Ⓓ $(7 \times 200) + (7 \times 50) + (7 \times 6)$

2. Sue uses the expression $(8 \times 3{,}000) + (8 \times 200) + (8 \times 9)$ to help solve a multiplication problem. Which is Sue's multiplication problem?

   Ⓐ 8×329

   Ⓑ $8 \times 3{,}029$

   Ⓒ $8 \times 3{,}209$

   Ⓓ $8 \times 3{,}290$

Spiral Review (CC.4.NBT.1, CC.4.NBT.2, CC.4.NBT.5)

3. What is another way to write 9×200? (Lesson 1.5)

   Ⓐ 18 ones

   Ⓑ 18 tens

   Ⓒ 18 hundreds

   Ⓓ 18 thousands

4. What is the value of the digit 4 in 46,000? (Lesson 1.1)

   Ⓐ 4 ten thousands

   Ⓑ 4 thousands

   Ⓒ 4 hundreds

   Ⓓ 4 tens

5. Chris bought 6 packages of napkins for his restaurant. There were 200 napkins in each package. How many napkins did Chris buy? (Lesson 2.3)

   Ⓐ 120

   Ⓑ 1,200

   Ⓒ 12,000

   Ⓓ 120,000

6. Which of the following lists the numbers in order from **least** to **greatest**? (Lesson 1.3)

   Ⓐ 8,512; 8,251; 8,125

   Ⓑ 8,251; 8,125; 8,512

   Ⓒ 8,125; 8,512; 8,251

   Ⓓ 8,125; 8,251; 8,512

Name _____

Multiply Using Partial Products

COMMON CORE STANDARD CC.4.NBT.5

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Estimate. Then record the product.

1. Estimate: 1,200

$$\begin{array}{r} 243 \\ \times \quad 6 \\ \hline 1{,}200 \\ 240 \\ +\quad 18 \\ \hline 1{,}458 \end{array}$$

2. Estimate: _____

$$\begin{array}{r} 640 \\ \times \quad 3 \\ \hline \end{array}$$

3. Estimate: _____

$$\begin{array}{r} \$149 \\ \times \quad 5 \\ \hline \end{array}$$

4. Estimate: _____

$$\begin{array}{r} 721 \\ \times \quad 8 \\ \hline \end{array}$$

5. Estimate: _____

$$\begin{array}{r} 293 \\ \times \quad 4 \\ \hline \end{array}$$

6. Estimate: _____

$$\begin{array}{r} \$416 \\ \times \quad 6 \\ \hline \end{array}$$

7. Estimate: _____

$$\begin{array}{r} 961 \\ \times \quad 2 \\ \hline \end{array}$$

8. Estimate: _____

$$\begin{array}{r} 837 \\ \times \quad 9 \\ \hline \end{array}$$

9. Estimate: _____

$$\begin{array}{r} 652 \\ \times \quad 4 \\ \hline \end{array}$$

10. Estimate: _____

$$\begin{array}{r} 307 \\ \times \quad 3 \\ \hline \end{array}$$

11. Estimate: _____

$$\begin{array}{r} 543 \\ \times \quad 7 \\ \hline \end{array}$$

12. Estimate: _____

$$\begin{array}{r} \$822 \\ \times \quad 5 \\ \hline \end{array}$$

Problem Solving REAL WORLD

13. A maze at a county fair is made from 275 bales of hay. The maze at the state fair is made from 4 times as many bales of hay. How many bales of hay are used for the maze at the state fair?

_____

14. Pedro gets 8 hours of sleep each night. How many hours does Pedro sleep in a year with 365 days?

_____

Lesson Check (CC.4.NBT.5)

TEST PREP

1. A passenger jet flies at an average speed of 548 miles per hour. At that speed, how many miles does the plane travel in 4 hours?

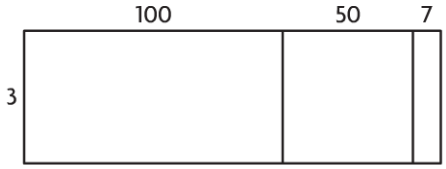
   Ⓐ 2,092 miles

   Ⓑ 2,112 miles

   Ⓒ 2,192 miles

   Ⓓ 2,480 miles

2. Use the model to find 3×157.



   Ⓐ 300,171

   Ⓑ 300,157

   Ⓒ 471

   Ⓓ 451

Spiral Review (CC.4.NBT.2, CC.4.NBT.4, CC.4.NBT.5)

3. The school fun fair made $1,768 on games and $978 on food sales. How much money did the fun fair make on games and food sales? (Lesson 1.6)

   Ⓐ $2,636

   Ⓑ $2,646

   Ⓒ $2,736

   Ⓓ $2,746

4. Use the table below.

State	Population
North Dakota	646,844
Alaska	698,473
Vermont	621,760

   Which of the following lists the states from least to greatest population? (Lesson 1.3)

   Ⓐ Alaska, North Dakota, Vermont

   Ⓑ Vermont, Alaska, North Dakota

   Ⓒ North Dakota, Vermont, Alaska

   Ⓓ Vermont, North Dakota, Alaska

5. A National Park covers 218,375 acres. What is this number written in expanded form? (Lesson 1.2)

   Ⓐ 200,000 + 10,000 + 8,000 + 300 + 70 + 5

   Ⓑ 20,000 + 1,000 + 800 + 30 + 75

   Ⓒ 218 + 375

   Ⓓ 218 thousand, 375

6. Last year a business had profits of $8,000. This year its profits are 5 times as great. What are this year's profits? (Lesson 2.3)

   Ⓐ $4,000

   Ⓑ $40,000

   Ⓒ $44,000

   Ⓓ $400,000

Name _____

Multiply Using Mental Math

COMMON CORE STANDARD CC.4.NBT.5

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Find the product. Tell which strategy you used.

1. 6×297 **Think:** $297 = 300 - 3$

$6 \times 297 = 6 \times (300 - 3)$

$= (6 \times 300) - (6 \times 3)$

$= 1{,}800 - 18$

$= 1{,}782$

1,782; use subtraction

2. $8 \times 25 \times 23$

_____

_____

3. 8×604

_____

_____

4. 50×28

_____

_____

5. 9×199

_____

_____

6. $20 \times 72 \times 5$

_____

_____

7. 32×25

_____

_____

Problem Solving REAL WORLD

8. Section J in an arena has 20 rows. Each row has 15 seats. All tickets cost $18 each. If all the seats are sold, how much money will the arena collect for Section J?

_____

9. At a high-school gym, the bleachers are divided into 6 equal sections. Each section can seat 395 people. How many people can be seated in the gym?

_____

TEST PREP

Lesson Check (CC.4.NBT.5)

1. Pencils come in cartons of 24 boxes. A school bought 50 cartons of pencils for the start of school. Each box of pencils cost $2. How much did the school spend on pencils?

   Ⓐ $240

   Ⓑ $1,200

   Ⓒ $2,400

   Ⓓ $4,800

2. The school also bought 195 packages of markers. There are 6 markers in a package. How many markers did the school buy?

   Ⓐ 1,170

   Ⓑ 1,195

   Ⓒ 1,200

   Ⓓ 1,230

Spiral Review (CC.4.NBT.4, CC.4.NBT.5)

3. Alex has 175 baseball cards. Rodney has 3 times as many baseball cards as Alex. How many fewer cards does Alex have than Rodney? (Lesson 2.7)

   Ⓐ 700

   Ⓑ 525

   Ⓒ 450

   Ⓓ 350

4. A theater seats 1,860 people. The last 6 shows have been sold out. Which is the **best** estimate of the total number of people attending the last 6 shows? (Lesson 2.4)

   Ⓐ fewer than 6,000

   Ⓑ about 6,000

   Ⓒ fewer than 12,000

   Ⓓ more than 20,000

5. At one basketball game, there were 1,207 people watching. At the next game, there were 958 people. How many people in all were at the two games? (Lesson 1.6)

   Ⓐ 2,155

   Ⓑ 2,165

   Ⓒ 2,265

   Ⓓ 10,787

6. Bill bought 4 jigsaw puzzles. Each puzzle has 500 pieces. How many pieces are in all the puzzles altogether? (Lesson 2.3)

   Ⓐ 200

   Ⓑ 900

   Ⓒ 2,000

   Ⓓ 20,000

Name _____

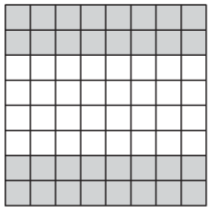
Problem Solving • Multistep Multiplication Problems

COMMON CORE STANDARD CC.4.OA.3

Use the four operations with whole numbers to solve problems.

Solve each problem.

1. A community park has 6 tables with a chessboard painted on top. Each board has 8 rows of 8 squares. When a game is set up, 4 rows of 8 squares on each board are covered with chess pieces. If a game is set up on each table, how many total squares are NOT covered by chess pieces?



$4 \times 8 = 32$

$32 \times 6 = \square$

192 squares

2. Jonah and his friends go apple picking. Jonah fills 5 baskets. Each basket holds 15 apples. If 4 of Jonah's friends pick the same amount as Jonah, how many apples do Jonah and his friends pick in all? Draw a diagram to solve the problem.

_____

3. There are 6 rows of 16 chairs set up for the third-grade play. In the first 4 rows, 2 chairs on each end are reserved for teachers. The rest of the chairs are for students. How many chairs are there for students?

_____

TEST PREP

Lesson Check (CC.4.OA.3)

1. At a tree farm, there are 9 rows of 36 spruce trees. In each row, 14 of the spruce trees are blue spruce. How many spruce trees are NOT blue spruce?

   Ⓐ 126 Ⓒ 310

   Ⓑ 198 Ⓓ 324

2. Ron is tiling a countertop. He needs to place 54 square tiles in each of 8 rows to cover the counter. He wants to randomly place 8 groups of 4 blue tiles each and have the rest of the tiles be white. How many white tiles will Ron need?

   Ⓐ 464 Ⓒ 400

   Ⓑ 432 Ⓓ 32

Spiral Review (CC.4.OA.1, CC.4.NBT.4, CC.4.NBT.5)

3. Juan reads a book with 368 pages. Savannah reads a book with 172 fewer pages than Juan's book. How many pages are in the book Savannah reads? **(Lesson 1.8)**

   Ⓐ 196

   Ⓑ 216

   Ⓒ 296

   Ⓓ 540

4. Hailey has bottles that hold 678 pennies each. About how many pennies does she have if she has 6 bottles filled with pennies? **(Lesson 2.4)**

   Ⓐ 3,600

   Ⓑ 3,900

   Ⓒ 4,200

   Ⓓ 6,000

5. Terrence plants a garden that has 8 rows of flowers, with 28 flowers in each row. How many flowers did Terrence plant? **(Lesson 2.6)**

   Ⓐ 1,664

   Ⓑ 224

   Ⓒ 164

   Ⓓ 36

6. Kevin has 5 fish in his fish tank. Jasmine has 4 times as many fish as Kevin has. How many fish does Jasmine have? **(Lesson 2.1)**

   Ⓐ 15

   Ⓑ 20

   Ⓒ 25

   Ⓓ 30

Name _____

Multiply 2-Digit Numbers with Regrouping

COMMON CORE STANDARD CC.4.NBT.5

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Estimate. Then record the product.

1. Estimate: 150

$$\begin{array}{r} {\scriptstyle 1} \\ 46 \\ \times\ \ 3 \\ \hline 138 \end{array}$$

2. Estimate: _____

$$\begin{array}{r} 32 \\ \times\ \ 8 \\ \hline \end{array}$$

3. Estimate: _____

$$\begin{array}{r} \$55 \\ \times\ \ 2 \\ \hline \end{array}$$

4. Estimate: _____

$$\begin{array}{r} 61 \\ \times\ \ 8 \\ \hline \end{array}$$

5. Estimate: _____

$$\begin{array}{r} 37 \\ \times\ \ 9 \\ \hline \end{array}$$

6. Estimate: _____

$$\begin{array}{r} \$18 \\ \times\ \ 7 \\ \hline \end{array}$$

7. Estimate: _____

$$\begin{array}{r} 83 \\ \times\ \ 5 \\ \hline \end{array}$$

8. Estimate: _____

$$\begin{array}{r} 95 \\ \times\ \ 8 \\ \hline \end{array}$$

9. Estimate: _____

$$\begin{array}{r} 94 \\ \times\ \ 9 \\ \hline \end{array}$$

10. Estimate: _____

$$\begin{array}{r} 57 \\ \times\ \ 6 \\ \hline \end{array}$$

11. Estimate: _____

$$\begin{array}{r} 72 \\ \times\ \ 3 \\ \hline \end{array}$$

12. Estimate: _____

$$\begin{array}{r} \$79 \\ \times\ \ 8 \\ \hline \end{array}$$

Problem Solving REAL WORLD

13. Sharon is 54 inches tall. A tree in her backyard is 5 times as tall as she is. The floor of her treehouse is at a height that is twice as tall as she is. What is the difference, in inches, between the top of the tree and the floor of the treehouse?

_____

14. Mr. Diaz's class is taking a field trip to the science museum. There are 23 students in the class, and a student admission ticket is $8. How much will the student tickets cost?

_____

TEST PREP

Lesson Check (CC.4.NBT.5)

1. A ferryboat makes four trips to an island each day. The ferry can hold 88 people. If the ferry is full on each trip, how many passengers are carried by the ferry each day?

   Ⓐ 176

   Ⓑ 322

   Ⓒ 332

   Ⓓ 352

2. Julian counted the number of times he drove across the Seven Mile Bridge while vacationing in the Florida Keys. He crossed the bridge 34 times. How many miles in all did Julian drive crossing the bridge?

   Ⓐ 328 miles

   Ⓑ 248 miles

   Ⓒ 238 miles

   Ⓓ 218 miles

Spiral Review (CC.4.NBT.2, CC.4.NBT.4, CC.4.NBT.5)

3. Sebastian wrote the population of his city as $300{,}000 + 40{,}000 + 60 + 7$. Which of the following shows the population of Sebastian's city written in standard form? **(Lesson 1.2)**

   Ⓐ 346,700

   Ⓑ 340,670

   Ⓒ 340,607

   Ⓓ 340,067

4. A plane flew 2,190 kilometers from Chicago to Flagstaff. Another plane flew 2,910 kilometers from Chicago to Oakland. How much farther did the plane that flew to Oakland fly than the plane that flew to Flagstaff? **(Lesson 1.7)**

   Ⓐ 720 kilometers

   Ⓑ 820 kilometers

   Ⓒ 5,000 kilometers

   Ⓓ 5,100 kilometers

5. Tori buys 27 packages of miniature racing cars. Each package contains 5 cars. About how many miniature racing cars does Tori buy? **(Lesson 2.4)**

   Ⓐ 15

   Ⓑ 32

   Ⓒ 100

   Ⓓ 150

6. Which of the following equations represents the Distributive Property? **(Lesson 2.5)**

   Ⓐ $3 \times 4 = 4 \times 3$

   Ⓑ $9 \times 0 = 0$

   Ⓒ $5 \times (3 + 4) = (5 \times 3) + (5 \times 4)$

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

Name _____

Lesson 2.11

Multiply 3-Digit and 4-Digit Numbers with Regrouping

COMMON CORE STANDARD CC.4.NBT.5

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Estimate. Then find the product.

1. Estimate: 4,000

1 2 2
1,467
× 4
5,868

2. Estimate: _____

5,339
× 6

3. Estimate: _____

$879
× 8

4. Estimate: _____

3,182
× 5

5. Estimate: _____

4,616
× 3

6. Estimate: _____

$2,854
× 9

7. Estimate: _____

7,500
× 2

8. Estimate: _____

948
× 7

9. Estimate: _____

1,752
× 6

10. Estimate: _____

550
× 9

11. Estimate: _____

6,839
× 4

12. Estimate: _____

$9,614
× 3

Problem Solving REAL WORLD

13. Lafayette County has a population of 7,022 people. Columbia County's population is 8 times as great as Lafayette County's population. What is the population of Columbia County?

_____

14. A seafood company sold 9,125 pounds of fish last month. If 6 seafood companies sold the same amount of fish, how much fish did the 6 companies sell last month in all?

_____

TEST PREP

Lesson Check (CC.4.NBT.5)

1. By recycling 1 ton of paper, 6,953 gallons of water are saved. How many gallons of water are saved by recycling 4 tons of paper?

   Ⓐ 24,602 gallons

   Ⓑ 27,612 gallons

   Ⓒ 27,812 gallons

   Ⓓ 28,000 gallons

2. Esteban counted the number of steps it took him to walk to school. He counted 1,138 steps. How many steps does he take walking to and from school each day?

   Ⓐ 2,000

   Ⓑ 2,266

   Ⓒ 2,276

   Ⓓ 22,616

Spiral Review (CC.4.NBT.2, CC.4.NBT.3, CC.4.NBT.4, CC.4.NBT.5)

3. A website has 13,406 people registered. What is the word form of this number? **(Lesson 1.2)**

   Ⓐ thirty thousand, four hundred six

   Ⓑ thirteen thousand, four hundred sixty

   Ⓒ thirteen thousand, four hundred six

   Ⓓ thirteen thousand, six hundred six

4. In one year, the McAlister family drove their car 15,680 miles. To the nearest thousand, how many miles did they drive their car that year? **(Lesson 1.4)**

   Ⓐ 15,000 miles

   Ⓑ 15,700 miles

   Ⓒ 16,000 miles

   Ⓓ 20,000 miles

5. Connor scored 14,370 points in a game. Amy scored 1,089 fewer points than Connor. How many points did Amy score? **(Lesson 1.8)**

   Ⓐ 12,281

   Ⓑ 13,281

   Ⓒ 15,359

   Ⓓ 15,459

6. Lea buys 6 model cars that each cost $15. She also buys 4 bottles of paint that each cost $11. How much does Lea spend in all on model cars and paint? **(Lesson 2.9)**

   Ⓐ $134

   Ⓑ $90

   Ⓒ $44

   Ⓓ $36

Name _____

Solve Multistep Problems Using Equations

ALGEBRA
Lesson 2.12

COMMON CORE STANDARD CC.4.OA.3

Use the four operations with whole numbers to solve problems.

Find the value of *n*.

1. $4 \times 27 + 5 \times 34 - 94 = n$

$108 + 5 \times 34 - 94 = n$

$108 + 170 - 94 = n$

$278 - 94 = n$

$184 = n$

2. $7 \times 38 + 3 \times 45 - 56 = n$

_____ $= n$

3. $6 \times 21 + 7 \times 29 - 83 = n$

_____ $= n$

4. $9 \times 19 + 2 \times 57 - 75 = n$

_____ $= n$

5. $5 \times 62 + 6 \times 33 - 68 = n$

_____ $= n$

6. $8 \times 19 + 4 \times 49 - 39 = n$

_____ $= n$

Problem Solving REAL WORLD

7. A bakery has 4 trays with 16 muffins on each tray. The bakery has 3 trays of cupcakes with 24 cupcakes on each tray. If 15 cupcakes are sold, how many muffins and cupcakes are left?

_____

_____

8. Katy bought 5 packages of stickers with 25 stickers in each package. She also bought 3 boxes of markers with 12 markers in each box. If she receives 8 stickers from a friend, how many stickers and markers does Katy have now?

_____

_____

TEST PREP

Lesson Check (CC.4.OA.3)

1. What is the value of n?

$9 \times 23 + 3 \times 39 - 28 = n$

Ⓐ 240

Ⓑ 296

Ⓒ 2,310

Ⓓ 8,162

2. Which expression has a value of 199?

Ⓐ $4 \times 28 + 6 \times 17 - 15$

Ⓑ $4 \times 17 + 6 \times 28 - 38$

Ⓒ $4 \times 38 + 6 \times 15 - 28$

Ⓓ $4 \times 15 + 6 \times 38 - 88$

Spiral Review (CC.4.OA.1, CC.4.NBT.5)

3. Which expression shows how you can multiply 9×475 using expanded form and the Distributive Property? **(Lesson 2.6)**

Ⓐ $(9 \times 4) + (9 \times 7) + (9 \times 5)$

Ⓑ $(9 \times 4) + (9 \times 70) + (9 \times 700)$

Ⓒ $(9 \times 400) + (9 \times 70) + (9 \times 5)$

Ⓓ $(9 \times 400) + (9 \times 700) + (9 \times 500)$

4. Which equation best represents the comparison sentence? **(Lesson 2.1)**

32 is 8 times as many as 4

Ⓐ $32 = 8 \times 4$

Ⓑ $32 \times 8 = 4$

Ⓒ $32 = 8 + 4$

Ⓓ $8 + 4 = 32$

5. Between which pair of numbers is the exact product of 379 and 8? **(Lesson 2.4)**

Ⓐ between 2,400 and 2,500

Ⓑ between 2,400 and 2,800

Ⓒ between 2,400 and 3,000

Ⓓ between 2,400 and 3,200

6. Which of the following statements shows the halving and doubling strategy to find 28×50? **(Lesson 2.8)**

Ⓐ $28 \times 50 = 14 \times 100$

Ⓑ $28 \times 50 = (14 \times 25) \times (14 \times 25)$

Ⓒ $28 \times 50 = (20 \times 50) + (8 \times 50)$

Ⓓ $28 \times 50 = 2 \times (14 \times 25)$

Name _____

COMMON CORE STANDARDS CC.4.OA.1, CC.4.OA.2, CC.4.OA.3, CC.4.NBT.5

Chapter 2 Extra Practice

Lesson 2.1

Write a comparison sentence.

1. $27 = 3 \times 9$

   _____ is _____ times as many as _____.

2. $7 \times 8 = 56$

   _____ times as many as _____ is _____.

Lessons 2.3, 2.5 - 2.6

Find the product.

1. $2 \times 700 =$ _____
2. $6 \times 6{,}000 =$ _____
3. $7 \times 13 =$ _____
4. $4 \times 19 =$ _____
5. $5 \times 216 =$ _____
6. $9 \times 1{,}362 =$ _____

Lessons 2.2, 2.9

Draw a diagram. Write an equation and solve.

1. Julia saw 5 times as many cars as trucks in a parking lot. If she saw 30 cars and trucks altogether in the parking lot, how many were trucks?

   _____

   _____

2. Ivan has 6 times as many blue beads as red beads. He has 49 red and blue beads in all. How many blue beads does Ivan have?

   _____

   _____

3. There are 6 rows with 18 chairs in each row. In the center of the chairs, 4 rows of 6 chairs are brown. The rest of the chairs are blue. How many chairs are blue?

   _____

   _____

Lessons 2.7, 2.10 - 2.11

Estimate. Then record the product.

1. Estimate: _____

$$\begin{array}{r} 318 \\ \times \quad 3 \\ \hline \end{array}$$

2. Estimate: _____

$$\begin{array}{r} \$522 \\ \times \quad 9 \\ \hline \end{array}$$

3. Estimate: _____

$$\begin{array}{r} \$36 \\ \times \quad 6 \\ \hline \end{array}$$

4. Estimate: _____

$$\begin{array}{r} 57 \\ \times \quad 8 \\ \hline \end{array}$$

5. Estimate: _____

$$\begin{array}{r} 3{,}600 \\ \times \quad 8 \\ \hline \end{array}$$

6. Estimate: _____

$$\begin{array}{r} \$9{,}107 \\ \times \quad 5 \\ \hline \end{array}$$

Lesson 2.8

Find the product. Tell which strategy you used.

1. $(4 \times 10) \times 10$

_____

_____

2. 2×898

_____

_____

3. $4 \times 7 \times 25$

_____

_____

Lessons 2.4, 2.12

1. School pennants cost $18 each. Ms. Lee says she will pay $146 for 7 pennants. Is her answer reasonable? Explain.

_____

2. Caleb draws 14 dogs on each of 4 posters. He draws 18 cats on each of 6 other posters. If he draws 5 more dogs on each poster with dogs, how many dogs and cats does he draw?

_____

Chapter 3

School-Home Letter

Dear Family,

During the next few weeks, our math class will be learning to multiply by 2-digit whole numbers. We will also learn how to describe the reasonableness of an estimate.

You can expect to see homework that provides practice with estimation and multiplication of numbers with more than 1 digit.

Here is a sample of how your child will be taught to multiply by a 2-digit number.

Vocabulary

compatible numbers Numbers that are easy to compute mentally

estimate To find an answer that is close to the exact amount

partial products A method of multiplying in which the ones, tens, hundreds, and so on are multiplied separately and then the products are added together

MODEL Multiply 2-Digit Numbers

This is one way that we will be multiplying by 2-digit numbers.

STEP 1

Multiply by the ones digit.

$$\begin{array}{r} {\scriptstyle 2}\\ 24\\ \times\ 25\\ \hline 120 \end{array} \leftarrow \text{partial product}$$

STEP 2

Multiply by the tens digit. Start by placing a zero in the ones place.

$$\begin{array}{r} {\scriptstyle 2}\\ 24\\ \times\ 25\\ \hline 120\\ +\ 480 \end{array} \leftarrow \text{partial product}$$

STEP 3

Add the partial products.

$$\begin{array}{r} {\scriptstyle 2}\\ 24\\ \times\ 25\\ \hline 120\\ +\ 480\\ \hline 600 \end{array} \leftarrow \text{product}$$

Tips

Estimating to Check Multiplication

When estimation is used to check that a multiplication answer is reasonable, usually each factor is rounded to a multiple of 10 that has only one nonzero digit. Then mental math can be used to recall the basic fact product, and patterns can be used to determine the correct number of zeros in the estimate.

Capítulo 3

Carta para la casa

Querida familia,

Durante las próximas semanas, en la clase de matemáticas aprenderemos a multiplicar por números enteros de 2 dígitos. También aprenderemos cómo describir qué tan razonable es una estimación.

Llevaré a la casa tareas con actividades para practicar la estimación y la multiplicación de números con más de 1 dígito.

Este es un ejemplo de la manera como aprenderemos a multiplicar por números de 2 dígitos.

Vocabulario

números compatibles Números que son fáciles de calcular mentalmente

estimar Hallar un total que se aproxime a la cantidad exacta

productos parciales Método de multiplicación a través del cual las unidades, decenas, centenas, etc., se multiplican por separado, y luego se suman los productos

MODELO Multiplicar números de 2 dígitos

Esta es una manera en la que multiplicaremos por números de 2 dígitos.

PASO 1

Multiplica por el dígito de las unidades.

$$\begin{array}{r} {\scriptstyle 2}\\ 24\\ \times\ 25\\ \hline 120 \end{array} \leftarrow \text{producto parcial}$$

PASO 2

Multiplica por el dígito de las decenas. Comienza escribiendo un cero en el lugar del las unidades.

$$\begin{array}{r} {\scriptstyle 2}\\ 24\\ \times\ 25\\ \hline 120\\ +\ 480 \end{array} \leftarrow \text{producto parcial}$$

PASO 3

Suma los productos parciales.

$$\begin{array}{r} {\scriptstyle 2}\\ 24\\ \times\ 25\\ \hline 120\\ +\ 480\\ \hline 600 \end{array} \leftarrow \text{producto}$$

Pistas

Estimar para comprobar la multiplicación

Cuando se usa la estimación para comprobar que la respuesta de una multiplicación es razonable, cada factor se suele redondear al múltiplo de 10 que tiene un solo dígito distinto de cero. Después se puede usar el cálculo mental para recordar el producto básico de la operación, y se pueden usar patrones para determinar la cantidad correcta de ceros de la estimación.

Name _____

Multiply by Tens

COMMON CORE STANDARD CC.4.NBT.5

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Choose a method. Then find the product.

1. 16×60

Use the halving-and-doubling strategy.

Find half of 16: $16 \div 2 = 8$.

Multiply this number by 60: $8 \times 60 = 480$

Double this result: $2 \times 480 = 960$

960

2. 80×22

_____

3. 30×52

_____

4. 60×20

_____

5. 40×35

_____

6. 10×90

_____

7. 31×50

_____

Problem Solving REAL WORLD

8. Kenny bought 20 packs of baseball cards. There are 12 cards in each pack. How many cards did Kenny buy?

_____

9. The Hart family drove 10 hours to their vacation spot. They drove an average of 48 miles each hour. How many miles did they drive in all?

_____

TEST PREP

Lesson Check (CC.4.NBT.5)

1. For the school play, 40 rows of chairs are set up. There are 22 chairs in each row. How many chairs are there in all?

   Ⓐ 800
   Ⓑ 840
   Ⓒ 880
   Ⓓ 8,800

2. At West School, there are 20 classrooms. Each classroom has 20 students. How many students are at West School?

   Ⓐ 40
   Ⓑ 400
   Ⓒ 440
   Ⓓ 4,000

Spiral Review (CC.4.OA.1, CC. 4.OA.2, CC.4.OA.3, CC.4.NBT.4)

3. Alex has 48 stickers. This is 6 times the number of stickers Max has. How many stickers does Max have? (Lesson 2.1)

   Ⓐ 6
   Ⓑ 7
   Ⓒ 8
   Ⓓ 9

4. Ali's dog weighs 8 times as much as her cat. Together, the two pets weigh 54 pounds. How much does Ali's dog weigh? (Lesson 2.2)

   Ⓐ 6 pounds
   Ⓑ 42 pounds
   Ⓒ 46 pounds
   Ⓓ 48 pounds

5. Allison has 3 containers with 25 crayons in each. She also has 4 boxes of markers with 12 markers in each box. She gives 10 crayons to a friend. How many crayons and markers does Allison have now? (Lesson 2.12)

   Ⓐ 34
   Ⓑ 113
   Ⓒ 123
   Ⓓ 133

6. The state of Utah covers 82,144 square miles. The state of Montana covers 145,552 square miles. What is the total area of the two states? (Lesson 1.6)

   Ⓐ 63,408 square miles
   Ⓑ 223,408 square miles
   Ⓒ 227,696 square miles
   Ⓓ 966,992 square miles

Name _____

Estimate Products

COMMON CORE STANDARD CC.4.NBT.5

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Estimate the product. Choose a method.

1. 38×21

38×21

↓ ↓

40×20

800

2. 63×19

3. $27 \times \$42$

4. 73×67

5. $37 \times \$44$

6. 85×71

7. 88×56

8. 97×13

9. 92×64

Problem Solving REAL WORLD

10. A dime has a diameter of about 18 millimeters. About how many millimeters long would a row of 34 dimes be?

11. A half-dollar has a diameter of about 31 millimeters. About how many millimeters long would a row of 56 half-dollars be?

TEST PREP

Lesson Check (CC.4.NBT.5)

1. Which is the best estimate for the product 43×68?

   Ⓐ 3,500

   Ⓑ 2,800

   Ⓒ 2,400

   Ⓓ 280

2. Marissa burns 93 calories each time she plays fetch with her dog. She plays fetch with her dog once a day. About how many calories will Marissa burn playing fetch with her dog in 28 days?

   Ⓐ 4,000

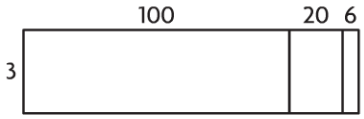
   Ⓑ 2,700

   Ⓒ 2,000

   Ⓓ 270

Spiral Review (CC.4.NBT.1, CC.4.NBT.3, CC.4.NBT.5)

3. Use the model to find 3×126. (Lesson 2.7)



   Ⓐ 368

   Ⓑ 378

   Ⓒ 468

   Ⓓ 478

4. A store sells a certain brand of jeans for $38. One day, the store sold 6 pairs of jeans of that brand. How much money did the store make from selling the 6 pairs of jeans? (Lesson 2.10)

   Ⓐ $188

   Ⓑ $228

   Ⓒ $248

   Ⓓ $288

5. The Gateway Arch in St. Louis, Missouri, weighs about 20,000 tons. Which amount could be the exact number of tons the Arch weighs? (Lesson 1.4)

   Ⓐ 31,093 tons

   Ⓑ 25,812 tons

   Ⓒ 17,246 tons

   Ⓓ 14,096 tons

6. Which is another name for 23 ten thousands? (Lesson 1.5)

   Ⓐ 23,000,000

   Ⓑ 2,300,000

   Ⓒ 230,000

   Ⓓ 23,000

Name _____

Area Models and Partial Products

COMMON CORE STANDARD CC.4.NBT.5

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Draw a model to represent the product. Then record the product.

1. 13×42

	40	2
10	400	20
3	120	6

$400 + 20 + 120 + 6 = 546$

2. 18×34

_____

3. 22×26

_____

4. 15×33

_____

5. 23×29

_____

6. 19×36

_____

Problem Solving REAL WORLD

7. Sebastian made the following model to find the product 17×24.

	20	4
10	200	40
7	14	28

$200 + 40 + 14 + 28 = 282$

Is his model correct? **Explain**.

_____

_____

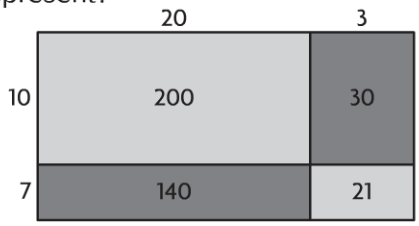
8. Each student in Ms. Sike's kindergarten class has a box of crayons. Each box has 36 crayons. If there are 18 students in Ms. Sike's class, how many crayons are there in all?

_____

TEST PREP

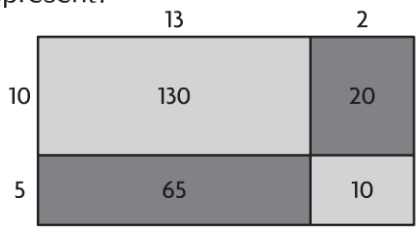
Lesson Check (CC.4.NBT.5)

1. Which product does the model below represent?



Ⓐ 161
Ⓒ 340
Ⓑ 230
Ⓓ 391

2. Which product does the model below represent?



Ⓐ 219
Ⓒ 244
Ⓑ 225
Ⓓ 275

Spiral Review (CC.4.OA.3, CC.4.NBT.5)

3. Mariah builds a tabletop using square tiles. There are 12 rows of tiles and 30 tiles in each row. How many tiles in all does Mariah use? (Lesson 3.1)

Ⓐ 100
Ⓑ 180
Ⓒ 360
Ⓓ 420

4. Trevor bakes 8 batches of biscuits, with 14 biscuits in each batch. He sets aside 4 biscuits from each batch for a bake sale and puts the rest in a jar. How many biscuits does Trevor put in the jar? (Lesson 2.12)

Ⓐ 112
Ⓑ 80
Ⓒ 50
Ⓓ 32

5. Li feeds her dog 3 cups of food each day. About how many cups of food does her dog eat in 28 days? (Lesson 2.4)

Ⓐ 60 cups
Ⓒ 80 cups
Ⓑ 70 cups
Ⓓ 90 cups

6. Which symbol makes the number sentence true? (Lesson 2.8)

$4 \square 0 = 0$

Ⓐ +
Ⓒ ×
Ⓑ −
Ⓓ ÷

Name _____

Multiply Using Partial Products

COMMON CORE STANDARD CC.4.NBT.5

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Record the product.

1.
$$\begin{array}{r} 23 \\ \times\ 79 \\ \hline 1{,}400 \\ 210 \\ 180 \\ +\ 27 \\ \hline 1{,}817 \end{array}$$

2.
$$\begin{array}{r} 56 \\ \times\ 32 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 87 \\ \times\ 64 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 33 \\ \times\ 25 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 94 \\ \times\ 12 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 51 \\ \times\ 77 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 69 \\ \times\ 49 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 86 \\ \times\ 84 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 98 \\ \times\ 42 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 73 \\ \times\ 37 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 85 \\ \times\ 51 \\ \hline \end{array}$$

Problem Solving REAL WORLD

12. Evelyn drinks 8 glasses of water a day, which is 56 glasses of water a week. How many glasses of water does she drink in a year? (1 year = 52 weeks)

_____

13. Joe wants to use the Hiking Club's funds to purchase new walking sticks for each of its 19 members. The sticks cost $26 each. The club has $480. Is this enough money to buy each member a new walking stick? If not, how much more money is needed?

_____

TEST PREP

Lesson Check (CC.4.NBT.5)

1. A carnival snack booth made $76 selling popcorn in one day. It made 22 times as much selling cotton candy. How much money did the snack booth make selling cotton candy?

   Ⓐ $284 Ⓒ $1,562

   Ⓑ $304 Ⓓ $1,672

2. What are the partial products of 42×28?

   Ⓐ 800, 80, 40, 16

   Ⓑ 800, 16

   Ⓒ 800, 40, 320, 16

   Ⓓ 80, 16

Spiral Review (CC.4.OA.1, CC.4.OA.3, CC.4.NBT.5)

3. Last year, the city library collected 117 used books for its shelves. This year, it collected 3 times as many books. How many books did it collect this year? (Lesson 2.1)

   Ⓐ 832

   Ⓑ 428

   Ⓒ 351

   Ⓓ 72

4. Washington Elementary has 232 students. Washington High has 6 times as many students. How many students does Washington High have? (Lesson 2.11)

   Ⓐ 1,392

   Ⓑ 1,382

   Ⓒ 1,292

   Ⓓ 1,281

5. What are the partial products of 35×7? (Lesson 2.7)

   Ⓐ 10, 12

   Ⓑ 21, 35

   Ⓒ 210, 35

   Ⓓ 350, 21

6. Shelby has ten $5 bills and thirteen $10 bills. How much money does Shelby have in all? (Lesson 2.12)

   Ⓐ $15

   Ⓑ $60

   Ⓒ $63

   Ⓓ $180

Name _____

Lesson 3.5

Multiply with Regrouping

COMMON CORE STANDARD CC.4.NBT.5

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Estimate. Then find the product.

1. Estimate: 2,700

$$\begin{array}{r} {\scriptstyle 2\ \ \ } \\ {\scriptstyle 1\ \ \ } \\ 87 \\ \times\ 32 \\ \hline 174 \\ +\ 2{,}610 \\ \hline 2{,}784 \end{array}$$

Think: 87 is close to 90 and 32 is close to 30.

$$90 \times 30 = 2{,}700$$

2. Estimate: _____

$$\begin{array}{r} 73 \\ \times\ 28 \\ \hline \end{array}$$

3. Estimate: _____

$$\begin{array}{r} 48 \\ \times\ 38 \\ \hline \end{array}$$

4. Estimate: _____

$$\begin{array}{r} 59 \\ \times\ 52 \\ \hline \end{array}$$

5. Estimate: _____

$$\begin{array}{r} 84 \\ \times\ 40 \\ \hline \end{array}$$

6. Estimate: _____

$$\begin{array}{r} 83 \\ \times\ 77 \\ \hline \end{array}$$

7. Estimate: _____

$$\begin{array}{r} 91 \\ \times\ 19 \\ \hline \end{array}$$

Problem Solving REAL WORLD

8. Baseballs come in cartons of 84 baseballs. A team orders 18 cartons of baseballs. How many baseballs does the team order?

_____

9. There are 16 tables in the school lunch room. Each table can seat 22 students. How many students can be seated at lunch at one time?

_____

TEST PREP

Lesson Check (CC.4.NBT.5)

1. The art teacher has 48 boxes of crayons. There are 64 crayons in each box. Which is the best estimate of the number of crayons the art teacher has?

   Ⓐ 2,400

   Ⓑ 2,800

   Ⓒ 3,000

   Ⓓ 3,500

2. A basketball team scored an average of 52 points in each of 15 games. How many points did the team score in all?

   Ⓐ 500

   Ⓑ 312

   Ⓒ 780

   Ⓓ 1,000

Spiral Review (CC.4.OA.1, CC.4.OA.2, CC.4.OA.3, CC.4.NBT.5)

3. One Saturday, an orchard sold 83 bags of apples. There are 27 apples in each bag. Which expression represents the total number of apples sold? (Lesson 3.4)

   Ⓐ 16 + 6 + 56 + 21

   Ⓑ 160 + 60 + 56 + 21

   Ⓒ 160 + 60 + 560 + 21

   Ⓓ 1,600 + 60 + 560 + 21

4. Hannah has a grid of squares that has 12 rows with 15 squares in each row. She colors 5 rows of 8 squares in the middle of the grid blue. She colors the rest of the squares red. How many squares does Hannah color red? (Lesson 2.9)

   Ⓐ 40

   Ⓑ 140

   Ⓒ 180

   Ⓓ 220

5. Gabriella has 4 times as many erasers a Leona. Leona has 8 erasers. How many erasers does Gabriella have? (Lesson 2.1)

   Ⓐ 32

   Ⓑ 24

   Ⓒ 12

   Ⓓ 2

6. Phil has 3 times as many rocks as Peter. Together, they have 48 rocks. How many more rocks does Phil have than Peter? (Lesson 2.2)

   Ⓐ 36

   Ⓑ 24

   Ⓒ 16

   Ⓓ 12

Name _____

Choose a Multiplication Method

COMMON CORE STANDARD CC.4.NBT.5

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Estimate. Then choose a method to find the product.

1. Estimate: 1,200

$$\begin{array}{r} 31 \\ \times\ 43 \\ \hline 93 \\ +\ 1{,}240 \\ \hline 1{,}333 \end{array}$$

2. Estimate: _____

$$\begin{array}{r} 67 \\ \times\ 85 \\ \hline \end{array}$$

3. Estimate: _____

$$\begin{array}{r} 68 \\ \times\ 38 \\ \hline \end{array}$$

4. Estimate: _____

$$\begin{array}{r} 95 \\ \times\ 17 \\ \hline \end{array}$$

5. Estimate: _____

$$\begin{array}{r} 49 \\ \times\ 54 \\ \hline \end{array}$$

6. Estimate: _____

$$\begin{array}{r} 91 \\ \times\ 26 \\ \hline \end{array}$$

7. Estimate: _____

$$\begin{array}{r} 82 \\ \times\ 19 \\ \hline \end{array}$$

8. Estimate: _____

$$\begin{array}{r} 46 \\ \times\ 27 \\ \hline \end{array}$$

9. Estimate: _____

$$\begin{array}{r} 41 \\ \times\ 33 \\ \hline \end{array}$$

10. Estimate: _____

$$\begin{array}{r} 97 \\ \times\ 13 \\ \hline \end{array}$$

11. Estimate: _____

$$\begin{array}{r} 75 \\ \times\ 69 \\ \hline \end{array}$$

Problem Solving REAL WORLD

12. A movie theatre has 26 rows of seats. There are 18 seats in each row. How many seats are there in all?

_____

13. Each class at Briarwood Elementary collected at least 54 cans of food during the food drive. If there are 29 classes in the school, what was the least number of cans collected?

_____

TEST PREP

Lesson Check (CC.4.NBT.5)

1. A choir needs new robes for each of its 46 singers. Each robe costs $32. What will be the total cost for all 46 robes?

   Ⓐ $1,472 Ⓒ $1,362

   Ⓑ $1,372 Ⓓ $230

2. A wall on the side of a building is made up of 52 rows of bricks with 44 bricks in each row. How many bricks make up the wall?

   Ⓐ 3,080 Ⓒ 488

   Ⓑ 2,288 Ⓓ 416

Spiral Review (CC.4.NBT.4, CC.4.NBT.5)

3. Which expression shows how to multiply 4×362 by using place value and expanded form? (Lesson 2.6)

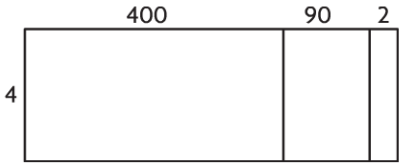
   Ⓐ $(4 \times 3) + (4 \times 6) + (4 \times 2)$

   Ⓑ $(4 \times 300) + (4 \times 600) + (4 \times 200)$

   Ⓒ $(4 \times 300) + (4 \times 60) + (4 \times 20)$

   Ⓓ $(4 \times 300) + (4 \times 60) + (4 \times 2)$

4. Use the model below. What is the product 4×492? (Lesson 2.7)



   Ⓐ $16 + 36 + 8 = 60$

   Ⓑ $160 + 36 + 8 = 204$

   Ⓒ $160 + 360 + 8 = 528$

   Ⓓ $1,600 + 360 + 8 = 1,968$

5. What is the sum $13,094 + 259,728$? (Lesson 1.6)

   Ⓐ 272,832

   Ⓑ 272,822

   Ⓒ 262,722

   Ⓓ 262,712

6. During the 2008–2009 season, there were 801,372 people who attended the home hockey games in Philadelphia. There were 609,907 people who attended the home hockey games in Phoenix. How much greater was the home attendance in Philadelphia than in Phoenix that season? (Lesson 1.7)

   Ⓐ 101,475 Ⓒ 201,465

   Ⓑ 191,465 Ⓓ 202,465