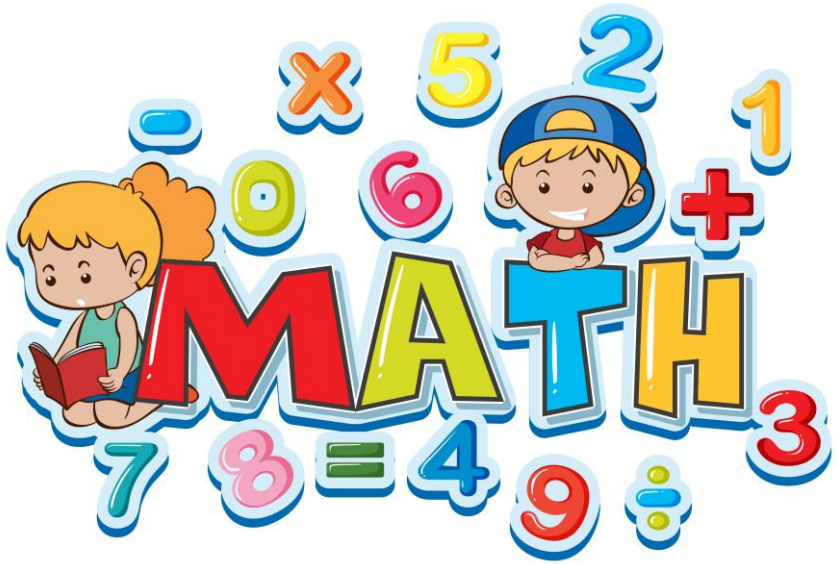
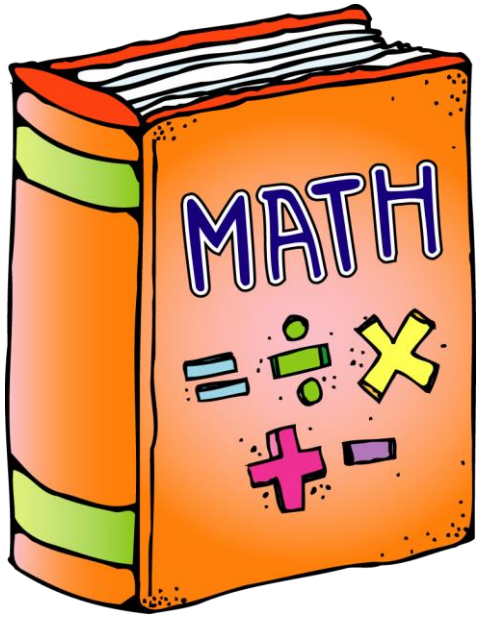


Grade 4

Student's book answers



Unit 2

Unit 2.. Lesson 1

On My Own

MATH REPLAY | GO ONLINE

Name _____

What are the values of the digits in the number?

1. 1,489

1: 1,000

4: 400

8: 80

9: 9

2. 98,124

1: 100

2: 20

4: 4

8: 8,000

9: 90,000

How can you describe the relationship between the values of the underlined digits?

3. 2̲58 and 2̲,180

2,000 is 10 times as much as 200.

4. 1̲6,852 and 14,6̲74

6,000 is 10 times as much as 600.

5. 1̲2,184 and 541̲,247

10,000 is 10 times as much as 1,000.

6. 45̲3 and 1,3̲33

30 is 10 times as much as 3.

What is the greatest number and the least number you can create using the given digits? Use each digit only once. Do not use 0 as the first digit.

7. 3, 5, 8, and 9

9,853; 3,589

8. 7, 1, 0, 6, 4

76,410; 10,467

9. Is the value of the digit in the hundreds place ten times the value of the digit in the tens place in the number 3,735? Explain.

No; Sample answer: The value of the hundreds place is ten times the value of the tens place, but the digits in each place are not the same.

35

11. What is the value of the digit 2 in 143,287? (Lesson 2-1)

200

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Unit 2 … Lesson 2

On My Own

MATH REPLAY | GO ONLINE

Name _____

How can you write the number in standard form?

1. Four hundred thousand, nine hundred thirty **400,930**
2. Thirty-four thousand, nine hundred eighty-nine **34,989**

How can you write the number in expanded form?

3. 530,879
   500,000 + 30,000 + 800 + 70 + 9
4. 6,216
   6,000 + 200 + 10 + 6

How can you write the number in word form?

5. 205,782
   two hundred five thousand, seven hundred eighty-two
6. 1,108,308
   one million, one hundred eight thousand, three hundred eight
7. **STEM Connection** Poppy found a sticker on the sign showing the size of Olympic National Park. She knows the size is between one million and nine hundred thousand acres. She also knows that the value of the digit in the ten thousands place is 10 times greater than the value of the digit in the thousands place. What is the size of the park?

922,651 acres

Unit 2 … Lesson 4

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is your estimate? Round the number as indicated.

1. 478,309 to the nearest thousand
   478,000
2. 105,201 to the nearest hundred thousand
   100,000
3. 95,550 to the nearest ten thousand
   100,000
4. 132,847 to the nearest thousand
   133,000
5. **STEM Connection** Denali National Park in Alaska has about 650,000 visitors each year. What could be the actual number of visitors in one year? Explain your reasoning.
   Sample answer: 647,550; 647,550 rounded to the nearest ten thousand is 650,000.

6. Some astronauts will travel to the moon, which is 238,855 miles from the earth.
   a. About how many miles will the astronauts travel there and back? Explain the reasoning for your estimate.
      Sample answer: The astronauts will travel about 480,000 miles. I rounded to the nearest ten thousand to get 240,000 and doubled it because they traveled to the moon and back.
   b. How accurate does the estimate need to be?
      Sample answer: Rounding to the nearest ten thousand gives me a closer estimate. If I round to the nearest hundred thousand and double it, I get 400,000. This is too far from the actual distance.

Unit 3

Unit 3... Lesson 1

On My Own

MATH REPLAY | GO ONLINE

Name _____

How can you estimate the sum or difference? Explain your strategy. Sample answers are given.

1. 12,258 + 14,926 = _____
   27,000; I rounded each number to the thousands.

2. 5,246 − 392 = _____
   4,800; I rounded each number to the hundreds.

How can you estimate the sum or difference? Use a calculator to find the actual answer. Circle the estimate closest to the actual sum or difference. Sample answers are given.

	Rounding	Front-end estimation
3. 8,303 − 2,789 = ?	5,000	(6,000)
4. 3,783 + 1,416 = ?	(5,200)	4,000
5. 3,155 + 2,205 = ?	(5,400)	5,000
6. 9,875 − 4,968 = ?	(4,900)	5,000
7. 4,228 + 986 = ?	(5,000)	4,900

8. How can you estimate the sum of 2,352 + 8,761? Explain your strategy.
   Sample answer: I rounded to the nearest hundred to estimate. I rounded 2,352 to 2,400 and 8,761 to 8,800. The estimated sum is 11,200.

9. Anton wrote the equation below. Is the difference reasonable? Explain your thinking.

   1,988 − 713 = 275

   The difference is not reasonable. Sample answer: I used the estimate 2,000 − 700 = 1,300. Anton's difference of 275 is not close to 1,300.

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Unit 3... Lesson 2

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is the sum?

1. 2,582 + 493 = 3,075
2. 476 + 8,719 = 9,195
3. 1,945 + 3,289 = 5,234
4. 12,017 + 5,308 = 17,325
5. 26,118 + 11,043 = 37,161
6. 47,621 + 21,345 = 68,966
7. 101,253 + 27,285 = 128,538

8. The indoor water park had 10,242 visitors in January and 11,495 visitors in February. What was the total attendance for the two months?
   21,737 visitors

9. **Extend Your Thinking** The book bank collected 13,962 books last year. This year it collected 15,185 books. The book bank expects to collect about the same number of books next year as it did this year. About how many books will be collected all three years? Explain your answer.
   Sample answer: About 44,000 books. I rounded each number of books to the nearest thousand. 14,000 + 15,000 + 15,000 = 44,000

Unit 3 … Lesson 3

On My Own

Name _____

What is the sum? Use an algorithm to solve.

1. 4,380 + 612 = **4,992**

2. 12,943 + 4,036 = **16,979**

3. 42,818 + 7,120 = **49,938**

4. 8,405 + 1,571 = **9,976**

5. 7,364 + 2,321 = **9,685**

6. 4,129 + 2,530 = **6,659**

7. A business purchased a copier for $1,217 and a laptop for $761. How much did the business spend on both items? Use an algorithm to solve. **$1,978**

8. A factory made 64,457 car parts in the first three weeks of the month and 3,502 car parts in the fourth week of the month. How many car parts did the factory make in the four weeks?
67,959 car parts

9. Aria is calculating 64,203 + 23,562 by using partial sums. Show what her work could look like. Then complete the equation.
Check students' work.

64,203 + 23,562 = **87,765**

71

Unit 3 … Lesson 5

On My Own

Name _____

How can you decompose to subtract? Find the difference.

1. 2,532 − 1,301 = **1,231**

2. 6,489 − 2,472 = **4,017**

3. 8,018 − 7,659 = **359**

4. 11,023 − 1,414 = **9,609**

How can you adjust to subtract? Find the difference.

5. 12,469 − 10,212 = **2,257**

6. 97,137 − 24,677 = **72,460**

7. 46,597 − 4,267 = **42,330**

8. 84,649 − 126 = **84,523**

9. A restaurant served 14,299 meals in January and 13,039 meals in February. How many more meals did the restaurant serve in January than in February?
1,260 meals

79

Unit 3... Lesson 6

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is the difference? Use an algorithm to solve.

1. 1,558 − 247 = **1,311**

2. 53,720 − 33,400 = **20,320**

3. 4,964 − 2,803 = **2,161**

4. 48,579 − 4,222 = **44,357**

5. 12,923 − 10,712 = **2,211**

6. 2,646 − 1,335 = **1,311**

7. 7,438 − 5,225 = **2,213**

8. 267,982 − 132,580 = **135,402**

9. Addie and her family are driving to Florida to see her grandmother. The trip is 1,387 miles. They drove 365 miles the first day. How many miles do they have left to drive? **1,022 miles**

83

Unit 3... Lesson 7

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is the difference? Solve using an algorithm.

1. 7,570 − 453 = **7,117**

2. 33,071 − 2,893 = **30,178**

3. 12,050 − 7,983 = **4,067**

4. 4,382 − 633 = **3,749**

5. 67,821 − 7,954 = **59,867**

6. 172,005 − 48,273 = **123,732**

7. 6,805 − 4,782 = **2,023**

8. 87,034 − 77,245 = **9,789**

Unit 3... Lesson 8

On My Own

MATH REPLAY | GO ONLINE

Name _____

Use diagrams and equations with variables to solve the problem.

1. Jamar needs sequins for costumes for a school play. The king's costume needs 3,250 sequins. The queen's costume needs 1,750 more sequins than the king's costume. The jester's costume needs 750 fewer sequins than the queen's costume. How many sequins does Jamar need for all three costumes?

12,500 sequins

2. There are 550 students eating lunch in four different picnic areas of the zoo. How many students are eating lunch at Flamingo Feast?

98 students

Picnic Area	Number of Students
Giraffe Jump	217
Manatee Munch	138
Gorilla Garden	97
Flamingo Feast	?

3. An art teacher had 140 jars of paint. In the first half of the year, her students used 95 jars of paint. The teacher bought 35 more jars of paint. At the end of the year, she had 15 unused jars of paint. How many jars of paint did her students use in the second half of the year?

65 jars

4. The cafeteria distributed 940 cartons of milk at breakfast and 1,670 cartons of milk at lunch. The cafeteria had 7,036 cartons of milk at the end of the day. How many cartons of milk did the cafeteria have at the beginning of the day?

9,646 cartons

91

Unit 4

Unit 4 … Lesson 1

On My Own

MATH REPLAY | GO ONLINE

Name _____

1. Which statement can be represented by the equation $3 \times 9 = 27$? Choose the correct answer.
   - A. 3 is 3 times as much as 27.
   - B. 27 is 9 times as much as 9.
   - C. 3 is 9 times as much as 27.
   - D. 27 is 3 times as much as 9.

2. Which statements are true? Choose all that apply.
   - A. 9 is 2 times as much as 18.
   - B. 2 is 9 times as much as 18.
   - C. 18 is 2 times as much as 9.
   - D. 9 is 18 times as much as 2.
   - E. 18 is 9 times as much as 2.

3. Complete the multiplicative comparison statement.

Stick A

Stick B

There are 3 times as many cubes in Stick A as in Stick B.

4. What multiplicative comparison statement can you write about the number of cubes in the two sticks?

2 cubes

10 cubes

Sample answer: 10 is 5 times as much as 2.

5. What equation can be used to represent the multiplicative comparison statement 24 is 4 times as much as 6?

Sample answer: $24 = 4 \times 6$

6. Sarah and Mark are looking at the equation $450 = 90 \times 5$. Sarah says it means 450 is 90 times as much as 5. Mark says it means 450 is 5 times as much as 90. How do you respond to them?

Sample answer: Both Sarah and Mark are correct.

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How can you draw pictures to represent each statement?

7. 16 is 4 times as many as 4. **Check students' drawings.**
8. 12 is 2 times as many as 6. **Check students' drawings.**
9. 12 is 3 times as many as 4 and 4 times as many as 3.

Check students' drawings.

10. What equation can be used to represent 36 is 9 times as many as 4 and 4 times as many as 9?

$36 = 9 \times 4$ or $36 = 4 \times 9$

11. **STEM Connection** Welding fuel comes in bottles of many sizes. The smallest bottle weighs 8 pounds, and the largest bottle weighs 9 times as much. What equation can you write to show how much the largest bottle weighs? Explain your answer.

$9 \times 8 = 72$; Sample answer: 9 times as much as 8 is 72, so the largest bottle weighs 72 pounds.

12. **Extend Your Thinking** Aaron plants a garden with 4 tomato plants, 3 times as many pepper plants as tomato plants, and twice as many zucchini plants as pepper plants. Write equations to show how many pepper plants and zucchini plants are in the garden. How many plants does Aaron plant in all?

Pepper plants: $3 \times 4 = 12$, zucchini plants: $2 \times 12 = 24$; $4 + 12 + 24 = 40$ plants in all

Reflect

What do you notice or think about when you use comparison words to describe a multiplication equation?

Answers may vary.

Math is... Mindset

How have your skills and interests helped you with your work today?

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Unit 4 … Lesson 3

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is the unknown number? Write a multiplication equation to represent the comparison. Then solve the equation.

1. 56 is ? times as much as 7.
   Sample answer: 56 = ? × 7; 8
2. 35 is 7 times as many as ?.
   Sample answer: 35 = 7 × ?; 5
3. 24 is 8 times as many as ?.
   Sample answer: 24 = 8 × ?; 3
4. 45 is ? times as much as 9.
   Sample answer: 45 = ? × 9; 5

How can you represent the problem? Draw a bar diagram and write a multiplication equation to solve.

5. Marie read 20 pages of a book last week. She read 2 times as many pages this week as she did last week. How many pages did she read this week?
   40 pages; Sample answer: 2 × 20 = ?; Check students' drawing.

6. A tomato plant is 48 inches tall. How many times as tall is the tomato plant as a pepper plant that is 8 inches tall?
   6 times as tall; Sample answer: ? × 8 = 48; Check students' drawing.

7. Dana saved $63. Dana saved 7 times as much as Julie. How much did Julie save?
   $9; Sample answer: 7 × ? = 63; Check students' drawing.

8. Wilani has 12 nickels. Wilani has 6 times as many nickels as Brenda. What is the value of all the coins Wilani and Brenda have? Explain your reasoning.
   70¢; Sample answer: Brenda has 2 nickels, which have a value of 10¢. Wilani has 60¢. 60 + 10 = 70

9. Perry ran 5 times as many minutes as Louis. How many minutes could Perry and Louis have run? Explain your answer.
   Sample answer: Perry ran 50 minutes; Louis ran 10 minutes; 50 = 5 × 10.

10. **STEM Connection** A welder used 4 meters of metal rod last week and 32 meters of metal rod this week. How many times as many meters of metal rod did the welder use this week compared to last week? Write an equation to represent and solve the problem.
    8 times as many; ? × 4 = 32

11. There are 12 birds in the apple tree. This is 4 times as many birds as there are in the cherry tree. How many birds are in the cherry tree? Show your work.
    3 birds; Sample answer: 4 × 3 = 12

12. **Extend Your Thinking** Vela practiced piano 12 hours last week. Vela practiced 4 times as long as Marina. Rian practiced 2 times as long as Marina. How does the time Vela practiced compare to the time Rian practied? Explain your reasoning.
    Vela practiced 2 times as long as Rian. Sample answer: Marina practiced 3 hours, 4 × 3 = 12; Rian practiced 6 hours, 2 × 3 = 6; 12 hours is 2 times as long as 6 hours.

Reflect

What comparison words do you look for in a problem to determine the equation you can use?

Answers may vary.

Math is... Mindset

What steps did you take to focus on your work today?

Unit 4 … Lesson 4

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is the unknown number? Write a division equation to represent the comparison. Then solve the equation.

1. 24 is 8 times as much as ?.
   Sample answer: 24 ÷ 8 = ?; 3
2. 20 is ? times as much as 5.
   Sample answer: 20 ÷ 5 = ?; 4
3. 18 is ? times as much as 6.
   Sample answer: 18 ÷ 6 = ?; 3
4. 16 is 4 times as much as ?.
   Sample answer: 16 ÷ 4 = ?; 4

How can you represent the problem? Draw a bar diagram and write a division equation to solve.

5. A piece of green string is 48 inches long. How many times as long is the green string than a piece of red string that is 8 inches long?
   6 times as long; Sample answer: 48 ÷ 8 = ?; Check students' drawing.

6. Ellie has 50 blue blocks. She has 5 times as many blue blocks as white blocks. How many white blocks does she have?
   10 blocks; Sample answer: 50 ÷ 5 = ?; Check students' drawing.

7. Charlie read 4 times as many pages as his sister. Charlie read 36 pages of his book. How many pages did Charlie's sister read? What equations represent the problem? Choose all that apply.

   A. 36 + 4 = ?
   B. 36 − 4 = ?
   C. 4 × ? = 36
   D. 4 × 36 = ?
   E. ? ÷ 4 = 36
   F. 36 ÷ 4 = ?

8. **Error Analysis** Michael scored 80 points on a video game. Alicia says his score is 4 times as much as her score. Michael thinks Alicia scored 320 points. How would you respond to him?
   Sample answer: Michael multiplied 80 by 4 to find Alicia's score. He should divide 80 by 4 since he scored 4 times as much as she did.

9. A rectangular garden is 3 times as long as it is wide. The length of the garden is 9 feet. How wide is the garden?
   3 feet

10. John ran 18 laps around the track. Sabrina ran 5 laps around the track. John ran twice as far as Mika and Sabrina combined. How many laps did Mika run around the track? Explain.
    4 laps; Sample answer: 18 ÷ 2 = 9; 9 − 5 = 4

11. Cory learned that the airport is 5 times farther from his home than the library. He knows the airport is 30 miles from home. What is the distance from Cory's home to the library?
    6 miles

12. **Extend Your Thinking** Write a word problem about a multiplicative comparison that you can solve using the equation 35 ÷ 5 = ?. Then solve.
    Answers may vary.

Reflect

When you solve problems like the ones in this lesson, how do you know you need to divide?

Answers may vary.

Math is… Mindset

How has creative thinking helped you solve a problem?

Unit 5

Unit 5 … Lesson 1

On My Own

Name _____

What are all the factor pairs for each number?

1. 14
   1 and 14, 2 and 7
2. 65
   1 and 65, 5 and 13
3. 23
   1 and 23
4. 64
   1 and 64, 2 and 32, 4 and 16, 8 and 8
5. 32
   1 and 32, 2 and 16, 4 and 8
6. 100
   1 and 100, 2 and 50, 4 and 25, 5 and 20, 10 and 10
7. Adrian arranges 12 flowers. He puts the same number of flowers in each vase and can use up to 6 vases. What are two other ways to arrange the flowers?

   Sample answer: 4 vases with 3 flowers each, 6 vases with 2 flowers each.
8. Setsuko is organizing 36 books in her bookcase. She wants the same number of books on each shelf and can use up to 3 shelves. What are three different ways she can arrange her books?
   1 shelf with 36 books, 2 shelves with 18 books, and 3 shelves with 12 books.
9. The soccer coach has 24 trophies to display in a cabinet. How can she display the trophies in equal rows? Find all possible arrangements.
   1 row of 24, 24 rows of 1, 2 rows of 12, 12 rows of 2, 3 rows of 8, 8 rows of 3, 4 rows of 6, 6 rows of 4

Unit 5 … Lesson 2

On My Own

Name _____

Is the number prime or composite? Explain your reasoning.

1. 3
   prime; Sample answer: It has exactly one factor pair.
2. 24
   composite; Sample answer: It has more than one factor pair.
3. 15
   composite; Sample answer: It has more than one factor pair.
4. 31
   prime; Sample answer: It has only one factor pair.
5. 87
   composite; Sample answer: It has more than one factor pair.
6. 2
   prime; Sample answer: It has only one factor pair.

Is the statement true or false? Justify your answer.

7. All even numbers greater than 2 are composite.
   true; Sample answer: All even numbers are products of 2.
8. 1 is a prime number.
   false; Sample answer: 1 has only one factor, so it is neither prime nor composite.
9. All odd numbers are prime.
   false; 15 is not prime.
10. All prime numbers are odd.
    false; 2 is a prime number and it is even.
11. Find a prime number greater than 50. Explain how you know it is prime. **Sample answer: 53 is prime because it has only one factor pair, 1 and 53.**

Unit 5 … Lesson 3

On My Own

MATH REPLAY | GO ONLINE

Name _____

What are the next five multiples of the number?

1. 4, 8, 12, 16, 20, 24

2. 7, 14, 21, 28, 35, 42

3. 12, 24, 36, 48, 60, 72

4. 15, 30, 45, 60, 75, 90

Choose all that apply.

5. Which numbers are multiples of 4?

   A. 14
   B. 16
   C. 34
   D. 64

6. Which numbers are multiples of 9?

   A. 91
   B. 89
   C. 45
   D. 18

What are the missing multiples?

7. 6, 12, 18, 24, 30, 36

8. 5, 10, 15, 20, 25

9. What do you know about the patterns in the products of 5? How can this help you determine if a number is a multiple of 5?

Sample answer: The products of 5 all have the digit 5 or 0 in the ones place. I know a number is a multiple of 5 if the digit in the ones place is 5 or 0.

Unit 6

Unit 6... Lesson 1

On My Own

MATH REPLAY GO ONLINE

Name _____

What's the product? Complete the equation.

1. $4 \times 40 = 4 \times$ 4 tens
   $=$ 16 tens
   $=$ 160

2. $4 \times 400 = 4 \times$ 4 hundreds
   $=$ 16 hundreds
   $=$ 1,600

3. $6 \times 600 = 6 \times$ 6 hundreds
   $= 36$ hundreds
   $=$ 3,600

4. $6 \times 6{,}000 = 6 \times$ 6 thousands
   $= 36$ thousands
   $=$ 36,000

5. $4 \times 20 = 4 \times 2 \times$ 10
   $=$ 8 $\times$ 10
   $=$ 80

6. $4 \times 200 = 4 \times 2 \times$ 100
   $=$ 8 $\times$ 100
   $=$ 800

7. $7 \times 300 =$ 2,100

8. $2 \times 900 =$ 1,800

9. $8 \times 80 =$ 640

10. $9 \times 7{,}000 =$ 63,000

Unit 6... Lesson 3

On My Own

MATH REPLAY GO ONLINE

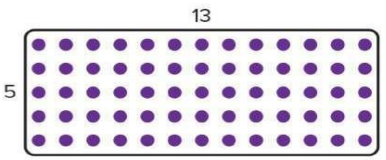
Name _____

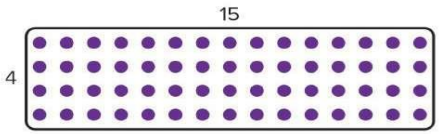
How can you use the Distributive Property to find the product?
Use the array to help you decompose and complete the equation.

Sample answers shown.

1. $5 \times 13 = 5 \times ($ 10 $+$ 3 $)$
   $= (5 \times$ 10 $) + (5 \times$ 3 $)$
   $=$ 50 $+$ 15
   $=$ 65

2. $4 \times 15 = 4 \times ($ 10 $+$ 5 $)$
   $= (4 \times$ 10 $) + (4 \times$ 5 $)$
   $=$ 40 $+$ 20
   $=$ 60





How can you use the Distributive Property to find the product?
Write and solve an equation to show your work.

3. 7×9
   Sample answer: $7 \times 9 = (7 \times 5) + (7 \times 4)$, $7 \times 9 = 63$

4. 12×8
   Sample answer: $12 \times 8 = (10 \times 8) + (2 \times 8)$, $12 \times 8 = 96$

5. 3×14
   Sample answer: $3 \times 14 = (3 \times 10) + (3 \times 4)$, $3 \times 14 = 42$

6. 5×17
   Sample answer: $5 \times 17 = (5 \times 10) + (5 \times 7)$, $5 \times 17 = 85$

Unit 6 … lesson 6

On My Own

MATH REPLAY | GO ONLINE

Name _____

How can you find the product? Complete the equation.

1. $20 \times 20 = 20 \times$ 2 tens
   $= 40$ tens
   $= 400$

2. $50 \times 40 = 50 \times$ 4 tens
   $= 200$ tens
   $= 2{,}000$

3. $70 \times 20 = 7 \times 10 \times$ 2 $\times 10$
   $= 7 \times$ 2 $\times 10 \times 10$
   $= 14 \times 100$
   $= 1{,}400$

4. $90 \times 50 = 9 \times 10 \times$ 5 $\times 10$
   $= 9 \times 5 \times 10 \times 10$
   $= 45 \times 100$
   $= 4{,}500$

5. $90 \times 90 =$ 8,100

6. $70 \times 50 =$ 3,500

7. $20 \times 90 =$ 1,800

8. $20 \times 60 =$ 1,200

9. A package of pencils contains 20 pencils. How many pencils are in 50 packages? 1,000 pencils

10. Tisha has 90 dimes. How much money does she have in dollars?
    $9.00

11. Samson exercised for 40 minutes each day for 30 days. How many total minutes did he exercise? Show and explain two ways to solve the problem. 1,200 minutes; Sample answers: I can use place value and basic facts. 40×3 tens $= 120$ tens or 1,200; I can use the Associative Property of Multiplication. $40 \times 30 = 4 \times 10 \times 3 \times 10$
    $40 \times 30 = 4 \times 3 \times 10 \times 10 = 12 \times 10 \times 10 = 1{,}200$

12. **Error Analysis** Alex is using 6×5 to find 60×50. He says there should be two zeros in the product. Do you agree? Explain why or why not. No, I do not agree; Sample answer: Alex forgot that there is already a zero in the basic fact $6 \times 5 = 30$, so there will be three zeros in $60 \times 50 = 3{,}000$.

13. **Extend Your Thinking** How can you find 30×800? Show your work. 24,000; Sample answer: I know $3 \times 8 = 24$, and I can use place value to think of 800 as 8 hundreds, so $3 \times 800 = 3 \times 8$ hundreds $= 24$ hundreds. $24 \times 100 = 2{,}400$; 30 is 10 times 3. So, $30 \times 800 = 10 \times 2{,}400 = 24{,}000$.

Reflect

How did you use patterns while multiplying two multiples of 10?

Answers may vary.

Math is... Mindset

How have different ideas and viewpoints helped you learn better?

Unit 6 … lesson 7

On My Own

MATH REPLAY | GO ONLINE

Name _____

How can you use partial products to solve? Show your work.

1. $98 \times 20 = ?$ **1,960; check students' work**

2. $42 \times 38 = ?$ **1,596; check students' work**

3. **74** × **57** = (70 × 50) + (70 × 7) + (4 × 50) + (4 × 7)

4. Alvin's Aquarium Shop has 27 fish tanks. Each tank can hold up to 45 fish. What is the greatest number of fish that can be kept at Alvin's Aquarium Shop? **1,215 fish; Sample answer:**
$27 \times 45 = (20 + 7) \times (40 + 5)$;
$27 \times 45 = (20 \times 40) + (20 \times 5) + (7 \times 40) + (7 \times 5)$;
$27 \times 45 = 800 + 100 + 280 + 35$; $27 \times 45 = 1{,}215$

5. **STEM Connection** Maya has 13 packs of quartz crystals. Each pack contains 17 crystals. How many crystals does she have?

221 crystals;
Sample answer: $13 \times 17 = (10 + 3) \times (10 + 7)$;
$13 \times 17 = (10 \times 10) + (10 \times 7) + (3 \times 10) + (3 \times 7)$;
$13 \times 17 = 100 + 70 + 30 + 21$; $13 \times 17 = 221$

6. **Error Analysis** To find the product of 27 × 83, Kim writes $27 \times 83 = (20 + 80) \times (20 + 3) \times (7 + 80) \times (7 + 3)$. Do you agree with Kim? Explain why or why not. **Sample answer: No, her work is not correct. She should have added the partial products and written $(20 \times 80) + (20 \times 3) + (7 \times 80) + (7 \times 3)$.**

7. Tyrone is using (60 × 50) + (60 × 9) + (4 × 50) + (4 × 9) to find the product of two 2-digit factors by using partial products. What two factors could he be multiplying? Explain how you know. **64 × 59; I know from looking at the partial products (60 × 50) and (4 × 50), that one of the factors is 64. I also know from looking at (4 × 50) and (4 × 9) that the other factor is 59.**

8. **Extend Your Thinking** How can you use an area model to multiply 593 × 42? Use drawings and words to explain your work.
Sample answer: I can use place value to decompose 593 as 500 + 90 + 3 and 42 as 40 + 2. Then find and add the partial products. (40 × 500) + (40 × 90) + (40 × 3) + (2 × 500) + (2 × 90) + (2 × 3) = 24,906.

9. There were 45 entrants at the local gymnastics meet. There were 65 times as many entrants at the state gymnastics meet. How many entrants were at the state meet? Use partial products to solve. **2,925 entrants; Sample answer:**
$65 \times 45 = (50 + 15) \times (30 + 15)$;
$65 \times 45 = (50 \times 30) + (15 \times 30) + (50 \times 15) + (15 \times 15)$;
$65 \times 45 = 1{,}500 + 450 + 750 + 225$; $65 \times 45 = 2{,}925$

Reflect

How did area models help you find products of two 2-digit factors?
Answers may vary.

Math is... Mindset
How did working as a team help you achieve your goal?