Chapter 3

School-Home Letter

Dear Family,

During the next few weeks, our math class will be learning about multiplication. We will learn how addition is related to multiplication and how to multiply with the factors 0 and 1.

You can expect to see homework that provides practice with multiplication.

Here is a sample of how your child will be shown the relationship between addition and multiplication.

Vocabulary

array A set of objects in rows and columns

equal groups Groups that have the same number of objects

factor A number that is multiplied by another number to find a product

multiply When you multiply, you combine equal groups to find how many in all.

product The answer in a multiplication problem

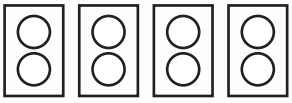
MODEL Relate Addition and Multiplication

This is how we will add or multiply to solve problems about equal groups.

Add.

STEP 1

Draw 2 counters in each rectangle to show 4 equal groups.



STEP 2

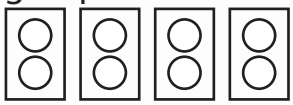
Write an addition sentence to find how many counters in all.

$2 + 2 + 2 + 2 = 8$

Multiply.

STEP 1

Draw 2 counters in each rectangle to show 4 equal groups.



STEP 2

Write a multiplication sentence to find how many counters in all.

$4 \times 2 = 8$

Tips

Skip Counting

Skip counting is another way to count equal groups to find how many in all. For example, there are 4 groups with 2 counters in each group, so skip counting by 2s can be used: 2, 4, 6, 8. There are 8 counters in all.

Activity

Help your child arrange 3 equal groups of like objects (no more than 10 objects in each group). Then have him or her write an addition sentence and a multiplication sentence to find how many objects in all.

Capítulo 3

Carta para la casa

Querída Familia,

Durante las próximas semanas, en la clase de matemáticas aprenderemos sobre la multiplicación. Aprenderemos cómo la suma se relaciona con la multiplicación y a multiplicar por los factores 0 y 1.

Llevaré a la casa tareas que sirven para practicar la multiplicación.

Este es un ejemplo de la manera como aprenderemos la relación entre la suma y la multiplicación.

Vocabulario

arreglo Un grupo de objetos organizados en filas y columnas

grupos iguales Grupos que tienen la misma cantidad de objetos

factor Un número que se multiplica por otro número para hallar el producto

multiplicar Cuando uno multiplica, combina grupos iguales para hallar cuántos hay en total.

producto El resultado de una multiplicación

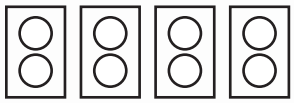
MODELO Relacionar la suma y multiplicación

Así es como vamos a sumar o multiplicar para resolver problemas de grupos iguales.

Suma.

PASO 1

Dibuja 2 fichas en cada rectángulo para mostrar 4 grupos iguales.



PASO 2

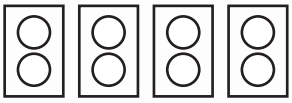
Escribe un enunciado de suma para hallar cuántas fichas hay en total.

$2 + 2 + 2 + 2 = 8$

Multiplica.

PASO 1

Dibuja 2 fichas en cada rectángulo para mostrar 4 grupos iguales.



PASO 2

Escribe un enunciado de multiplicación para hallar cuántas fichas hay en total.

$4 \times 2 = 8$

Pistas

Contar salteado

Contar salteado es otra manera de contar grupos iguales para hallar cuánto hay en total. Por ejemplo, hay 4 grupos con 2 fichas cada uno, por lo tanto puedes contar salteado de 2 en 2: 2, 4, 6, 8. Hay 8 fichas en total.

Actividad

Ayude a su hijo a formar 3 grupos iguales de objetos parecidos (no más de 10 objetos en cada grupo). Después, pídale que escriba un enunciado de suma y uno de multiplicación para hallar cuántos objetos hay en total.

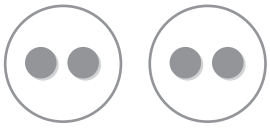
Name _____

Count Equal Groups

COMMON CORE STANDARD MACC.3.OA.1.1
Represent and solve problems involving multiplication and division.

Draw equal groups. Skip count to find how many.

1. 2 groups of 2 4



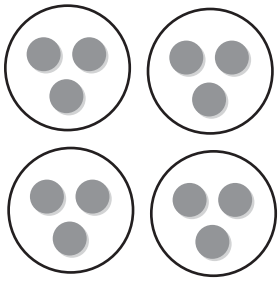
2. 3 groups of 6 _____

3. 5 groups of 3 _____

4. 4 groups of 5 _____

Count equal groups to find how many.

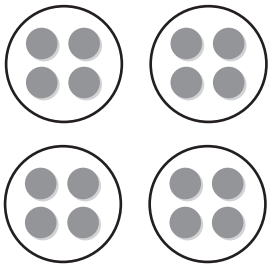
5.



_____ groups of _____

_____ in all

6.



_____ groups of _____

_____ in all

Problem Solving REAL WORLD

7. Marcia puts 2 slices of cheese on each sandwich. She makes 4 cheese sandwiches. How many slices of cheese does Marcia use in all?

_____

8. Tomas works in a cafeteria kitchen. He puts 3 cherry tomatoes on each of 5 salads. How many tomatoes does he use?

_____

PARCC TEST PREP

Lesson Check (MACC.3.OA.1.1)

1. Jen makes 3 bracelets. Each bracelet has 3 beads. How many beads does Jen use?

Ⓐ 12 Ⓒ 6

Ⓑ 9 Ⓓ 3

2. Ian has 5 cards to mail. Each card needs 2 stamps. How many stamps does Ian need?

Ⓐ 2 Ⓒ 10

Ⓑ 5 Ⓓ 15

Spiral Review (MACC.3.NBT.1.1, MACC.3.NBT.1.2)

3. There were 384 people at a play on Friday night. There were 512 people at the play on Saturday night. Which is the best estimate of the total number of people who attended the play on both nights? (Lesson 1.3)

Ⓐ 900 Ⓒ 700

Ⓑ 800 Ⓓ 500

4. Walking the Dog Pet Store has 438 leashes in stock. They sell 79 leashes during a one-day sale. How many leashes are left in stock after the sale? (Lesson 1.10)

Ⓐ 459 Ⓒ 369

Ⓑ 441 Ⓓ 359

5. The Lakeside Tour bus traveled 490 miles on Saturday and 225 miles on Sunday. About how many more miles did it travel on Saturday? (Lesson 1.8)

Ⓐ 500 miles Ⓒ 300 miles

Ⓑ 400 miles Ⓓ 100 miles

6. During one week at Jackson School, 210 students buy milk and 196 students buy juice. How many drinks are sold that week? (Lesson 1.7)

Ⓐ 496 Ⓒ 396

Ⓑ 406 Ⓓ 306

Name _____

Relate Addition and Multiplication

COMMON CORE STANDARD MACC.3.OA.1.1
Represent and solve problems involving multiplication and division.

Draw a quick picture to show the equal groups. Then write related addition and multiplication sentences.

1. 3 groups of 5

5 + 5 + 5 = 15

3 × 5 = 15

2. 3 groups of 4

___ + ___ + ___ = ___

___ × ___ = ___

3. 4 groups of 3

___ + ___ + ___ + ___ = ___

___ × ___ = ___

4. 5 groups of 2

___ + ___ + ___ + ___ + ___ = ___

___ × ___ = ___

Complete. Write a multiplication sentence.

5. 7 + 7 + 7 = ___

___ × ___ = ___

6. 3 + 3 + 3 = ___

___ × ___ = ___

Problem Solving REAL WORLD

7. There are 6 jars of pickles in a box. Ed has 3 boxes of pickles. How many jars of pickles does he have in all? Write a multiplication sentence to find the answer.

___ × ___ = ___ jars

8. Each day, Jani rides her bike 5 miles. How many miles does Jani ride in all in 4 days? Write a multiplication sentence to find the answer.

___ × ___ = ___ miles

PARCC TEST PREP

Lesson Check (MACC.3.OA.1.1)

1. Which is another way to show $3 + 3 + 3 + 3 + 3 + 3$?

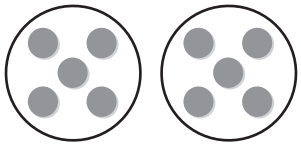
Ⓐ 5×3

Ⓑ 4×3

Ⓒ 8×3

Ⓓ 6×3

2. Use the model. How many counters are there in all?



Ⓐ 8

Ⓑ 10

Ⓒ 12

Ⓓ 14

Spiral Review (MACC.3.NBT.1.1, MACC.3.NBT.1.2, MACC.3.MD.2.4)

3. A school gave 884 pencils to students on the first day of school. What is 884 rounded to the nearest hundred? (Lesson 1.2)

Ⓐ 800

Ⓑ 880

Ⓒ 890

Ⓓ 900

4. Find the difference. (Lesson 1.10)

$$\begin{array}{r} 632 \\ -\ 274 \\ \hline \end{array}$$

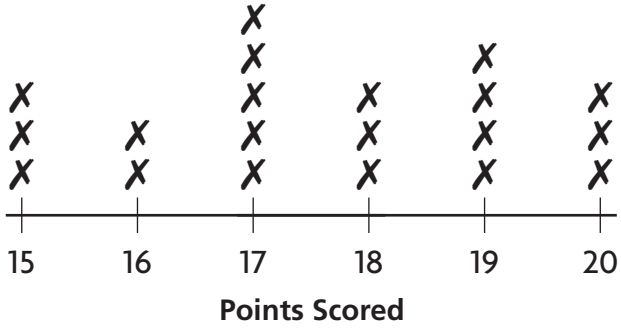
Ⓐ 906

Ⓑ 442

Ⓒ 358

Ⓓ 354

5. The line plot below shows how many points Trevor scored in 20 games. (Lesson 2.7)



In how many games did Trevor score at least 18 points?

Ⓐ 3

Ⓑ 5

Ⓒ 6

Ⓓ 10

6. Darrien read 97 pages last week. Evan read 84 pages last week. How many pages in all did the boys read? (Lesson 1.7)

Ⓐ 13

Ⓑ 171

Ⓒ 181

Ⓓ 271

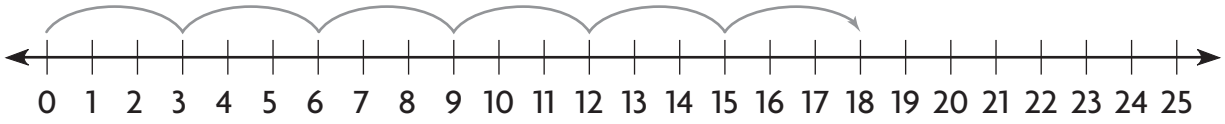
Name _____

Skip Count on a Number Line

COMMON CORE STANDARD MACC.3.OA.1.3
Represent and solve problems involving multiplication and division.

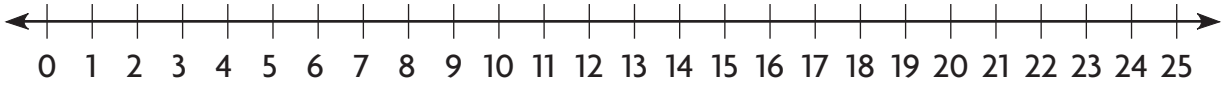
Draw jumps on the number line to show equal groups. Find the product.

1. 6 groups of 3



$6 \times 3 =$ 18

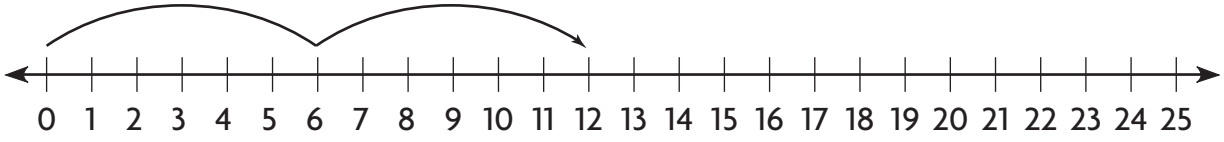
2. 3 groups of 5



$3 \times 5 =$ _____

Write the multiplication sentence the number line shows.

3. 2 groups of 6



_____ × _____ = _____

Problem Solving REAL WORLD

4. Allie is baking muffins for students in her class. There are 6 muffins in each baking tray. She bakes 5 trays of muffins. How many muffins is she baking in all?

_____

5. A snack package has 4 cheese sticks. How many cheese sticks are in 4 packages?

_____

PARCC TEST PREP

Lesson Check (MACC.3.OA.1.3)

1. Louise skip counts by 4 on a number line to find 5×4. How many jumps should she draw on the number line?

Ⓐ 3
Ⓑ 4
Ⓒ 5
Ⓓ 9

2. Theo needs 4 boards that are each 3 feet long to make bookshelves. How many feet of boards does he need altogether?

Ⓐ 12 feet
Ⓑ 7 feet
Ⓒ 4 feet
Ⓓ 3 feet

Spiral Review (MACC.3.NBT.1.1, MACC.3.MD.2.3)

3. Estimate the sum. (Lesson 1.3)

$$\begin{array}{r} 518 \\ +251 \\ \hline \end{array}$$

Ⓐ 200
Ⓑ 700
Ⓒ 800
Ⓓ 900

4. Which number would you put in a frequency table to show 𝍸 |||? (Lesson 2.1)

Ⓐ 5
Ⓑ 6
Ⓒ 7
Ⓓ 8

5. A manager at a shoe store received an order for 346 pairs of shoes. What is 346 rounded to the nearest hundred? (Lesson 1.2)

Ⓐ 400
Ⓑ 350
Ⓒ 340
Ⓓ 300

6. Toby is making a picture graph. Each picture of a book is equal to 2 books he has read. The row for Month 1 has 3 pictures of books. How many books did Toby read during Month 1? (Lesson 2.2)

Ⓐ 2
Ⓑ 3
Ⓒ 6
Ⓓ 8

Name _____

Problem Solving • Model Multiplication

COMMON CORE STANDARD MACC.3.OA.4.8
Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Draw a diagram to solve each problem.

1. Robert put some toy blocks into 3 rows. There are 5 blocks in each row. How many blocks are there in all?

15 blocks

2. Mr. Fernandez is putting tiles on his kitchen floor. There are 2 rows with 9 tiles in each row. How many tiles are there in all?

_____

3. In Jillian's garden, there are 3 rows of carrots, 2 rows of string beans, and 1 row of peas. There are 8 plants in each row. How many plants are there in all?

_____

4. In Sorhab's classroom, there are 3 rows with 7 desks in each row. How many desks are there in all?

_____

5. Maya visits the movie rental store. On one wall, there are 6 DVDs on each of 5 shelves. On another wall, there are 4 DVDs on each of 4 shelves. How many DVDs are there in all?

_____

6. The media center at Josh's school has a computer area. The first 4 rows have 6 computers each. The fifth row has 4 computers. How many computers are there in all?

_____

PARCC TEST PREP

Lesson Check (MACC.3.OA.4.8)

1. There are 5 shelves of video games in a video store. There are 6 video games on each shelf. How many video games are there in all?

Ⓐ 35
Ⓑ 30
Ⓒ 20
Ⓓ 11

2. Ken watches a marching band. He sees 2 rows of flute players. Six people are in each row. He sees 8 trombone players. How many flute or trombone players does Ken see?

Ⓐ 2
Ⓑ 6
Ⓒ 16
Ⓓ 20

Spiral Review (MACC.3.NBT.1.1, MACC.3.NBT.1.2, MACC.3.MD.2.3)

3. What is the sum of 438 and 382? (Lesson 1.7)

Ⓐ 720
Ⓑ 810
Ⓒ 820
Ⓓ 910

4. Estimate the sum. (Lesson 1.3)

$$\begin{array}{r} 622 \\ +\ 84 \\ \hline \end{array}$$

Ⓐ 500
Ⓑ 600
Ⓒ 700
Ⓓ 800

5. Francine uses 167 silver balloons and 182 gold balloons for her store party. How many silver and gold balloons in all does Francine use? (Lesson 1.7)

Ⓐ 15
Ⓑ 345
Ⓒ 349
Ⓓ 359

6. Yoshi is making a picture graph. Each picture of a soccer ball stands for two goals he scored for his team. The row for January has 9 soccer balls. How many goals did Yoshi score during January? (Lesson 2.2)

Ⓐ 18
Ⓑ 16
Ⓒ 11
Ⓓ 9

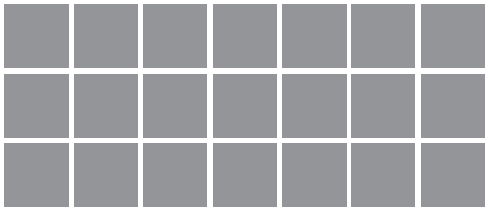
Name _____

Model with Arrays

COMMON CORE STANDARD MACC.3.OA.1.3
Represent and solve problems involving multiplication and division.

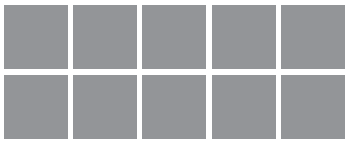
Write a multiplication sentence for the array.

1.



$3 \times 7 = 21$

2.



$2 \times 5 =$ _____

Draw an array to find the product.

3. $4 \times 2 =$ _____

4. $4 \times 4 =$ _____

5. $3 \times 2 =$ _____

6. $2 \times 8 =$ _____

Problem Solving REAL WORLD

7. Lenny is moving tables in the school cafeteria. He places all the tables in a 7×4 array. How many tables are in the cafeteria?

_____

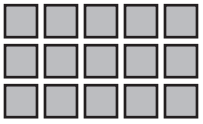
8. Ms. DiMeo directs the school choir. She has the singers stand in 3 rows. There are 8 singers in each row. How many singers are there in all?

_____

PARCC TEST PREP

Lesson Check (MACC.3.OA.1.3)

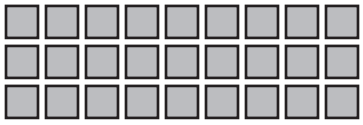
1. What multiplication sentence does this array show?



Ⓐ $2 \times 3 = 6$ Ⓒ $3 \times 4 = 12$

Ⓑ $6 \times 3 = 18$ Ⓓ $3 \times 5 = 15$

2. What multiplication sentence does this array show?



Ⓐ $3 \times 9 = 27$ Ⓒ $3 \times 7 = 21$

Ⓑ $3 \times 8 = 24$ Ⓓ $4 \times 5 = 20$

Spiral Review (MACC.3.NBT.1.1, MACC.3.NBT.1.2, MACC.3.MD.2.3)

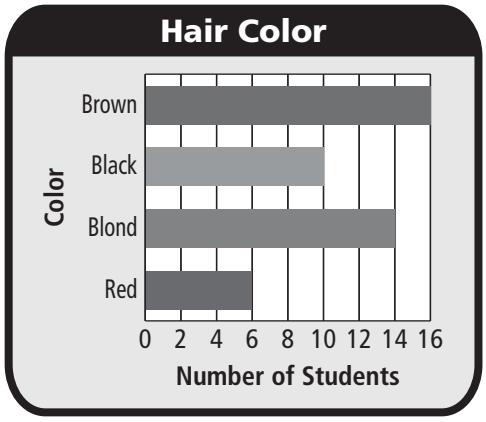
3. Use the table to find who traveled 700 miles farther than Paul during summer vacation. (Lesson 1.6)

Summer Vacations	
Name	Distance in Miles
Paul	233
Andrew	380
Bonnie	790
Tara	933
Susan	853

Ⓐ Andrew Ⓒ Susan

Ⓑ Bonnie Ⓓ Tara

4. Use the bar graph to find what hair color most students have. (Lesson 2.4)



Ⓐ Brown Ⓒ Blond

Ⓑ Black Ⓓ Red

5. Spencer ordered 235 cans of tomatoes to make salsa for the festival. What is 235 rounded to the nearest ten? (Lesson 1.2)

Ⓐ 200

Ⓑ 230

Ⓒ 240

Ⓓ 300

6. Which bar would be the longest on a bar graph of the data? (Lesson 2.5)

Favorite Pizza Topping	
Topping	Votes
Cheese	5
Pepperoni	4
Vegetable	1
Sausage	3

Ⓐ Cheese Ⓒ Vegetable

Ⓑ Pepperoni Ⓓ Sausage

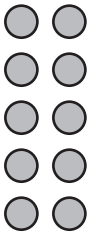
Name _____

Commutative Property of Multiplication

COMMON CORE STANDARD MACC.3.OA.2.5
Understand properties of multiplication and the relationship between multiplication and division.

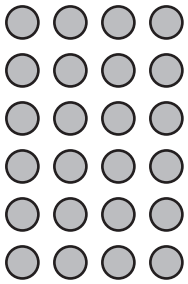
Write a multiplication sentence for the model. Then use the Commutative Property of Multiplication to write a related multiplication sentence.

1.



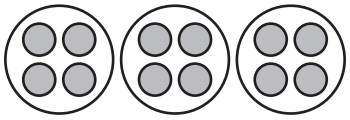
5 × 2 = 10
2 × 5 = 10

2.



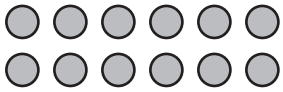
____ × ____ = ____
____ × ____ = ____

3.



____ × ____ = ____
____ × ____ = ____

4.



____ × ____ = ____
____ × ____ = ____

Problem Solving REAL WORLD

5. A garden store sells trays of plants. Each tray holds 2 rows of 8 plants. How many plants are in one tray?

_____

6. Jeff collects toy cars. They are displayed in a case that has 4 rows. There are 6 cars in each row. How many cars does Jeff have?

_____

PARCC TEST PREP

Lesson Check (MACC.3.OA.2.5)

1. Which is an example of the Commutative Property of Multiplication?

Ⓐ $8 \times 4 = 8 \times 4$

Ⓑ $4 \times 2 = 2 \times 4$

Ⓒ $2 \times 8 = 4 \times 4$

Ⓓ $2 + 4 = 2 \times 4$

2. What factor makes the number sentence true?

$7 \times 4 = \blacksquare \times 7$

Ⓐ 2

Ⓑ 4

Ⓒ 7

Ⓓ 28

Spiral Review (MACC.3.NBT.1.1, MACC.3.NBT.1.2, MACC.3.MD.2.3)

3. Ms. Williams drove 149 miles on Thursday and 159 miles on Friday. About how many miles did she drive altogether the two days? (Lesson 1.3)

Ⓐ about 150 miles

Ⓑ about 200 miles

Ⓒ about 300 miles

Ⓓ about 400 miles

4. Inez has 699 pennies and 198 nickels. Estimate how many more pennies than nickels she has. (Lesson 1.8)

Ⓐ about 500

Ⓑ about 600

Ⓒ about 700

Ⓓ about 900

5. This year, the parade had 127 floats. That is 34 fewer floats than last year. How many floats were in the parade last year? (Lesson 1.7)

Ⓐ 161

Ⓑ 151

Ⓒ 103

Ⓓ 93

6. Jeremy made a tally table to record how his friends voted for their favorite pet. His table shows 𝍸 𝍸 || next to Dog. How many friends voted for dog? (Lesson 2.1)

Ⓐ 6

Ⓑ 8

Ⓒ 10

Ⓓ 12

Name _____

Multiply with 1 and 0

COMMON CORE STANDARD MACC.3.OA.2.5
Understand properties of multiplication and the relationship between multiplication and division.

Find the product.

1. $1 \times 4 = \underline{4}$ **2.** $0 \times 8 = \_\_\_\_$ **3.** $0 \times 4 = \_\_\_\_$ **4.** $1 \times 6 = \_\_\_\_$

5. $3 \times 0 = \_\_\_\_$ **6.** $0 \times 9 = \_\_\_\_$ **7.** $8 \times 1 = \_\_\_\_$ **8.** $1 \times 2 = \_\_\_\_$

9. $0 \times 6 = \_\_\_\_$ **10.** $4 \times 0 = \_\_\_\_$ **11.** $7 \times 1 = \_\_\_\_$ **12.** $1 \times 5 = \_\_\_\_$

13. $3 \times 1 = \_\_\_\_$ **14.** $0 \times 7 = \_\_\_\_$ **15.** $1 \times 9 = \_\_\_\_$ **16.** $5 \times 0 = \_\_\_\_$

17. $10 \times 1 = \_\_\_\_$ **18.** $2 \times 0 = \_\_\_\_$ **19.** $5 \times 1 = \_\_\_\_$ **20.** $1 \times 0 = \_\_\_\_$

21. $0 \times 0 = \_\_\_\_$ **22.** $1 \times 3 = \_\_\_\_$ **23.** $9 \times 0 = \_\_\_\_$ **24.** $1 \times 1 = \_\_\_\_$

Problem Solving REAL WORLD

25. Peter is in the school play. His teacher gave 1 copy of the play to each of 6 students. How many copies of the play did the teacher hand out?

_____

26. There are 4 egg cartons on the table. There are 0 eggs in each carton. How many eggs are there in all?

_____

PARCC TEST PREP

Lesson Check (MACC.3.OA.2.5)

1. There are 0 bicycles in each bicycle rack. If there are 8 bicycle racks, how many bicycles are there in all?

Ⓐ 80 Ⓒ 1
Ⓑ 8 Ⓓ 0

2. What is the product?

$1 \times 0 = \_\_\_$

Ⓐ 0 Ⓒ 10
Ⓑ 1 Ⓓ 11

Spiral Review (MACC.3.NBT.1.2, MACC.3.OA.1.3, MACC.3.MD.2.3)

3. Mr. Ellis drove 197 miles on Monday and 168 miles on Tuesday. How many miles did he drive in all? (Lesson 1.6)

Ⓐ 29 miles Ⓒ 365 miles
Ⓑ 255 miles Ⓓ 400 miles

4. What multiplication sentence does the array show? (Lesson 3.5)

Ⓐ $1 \times 6 = 6$
Ⓑ $3 \times 2 = 6$
Ⓒ $2 \times 6 = 12$
Ⓓ $5 + 1 = 6$

Use the bar graph for 5–6.

5. How many cars were washed on Friday and Saturday combined? (Lesson 2.6)

Ⓐ 55 Ⓒ 90
Ⓑ 80 Ⓓ 120

6. How many more cars were washed on Saturday than on Sunday? (Lesson 2.6)

Ⓐ 95 Ⓒ 25
Ⓑ 30 Ⓓ 15

Name _____

COMMON CORE STANDARDS MACC.3.OA.1.1, MACC.3.OA.1.3, MACC.3.OA.2.5, MACC.3.OA.4.8

Chapter 3 Extra Practice

Lesson 3.1

Draw equal groups. Skip count to find how many.

1. 2 groups of 4 _____

2. 4 groups of 3 _____

Lesson 3.2

Draw a quick picture to show the equal groups. Then write related addition and multiplication sentences.

1. 2 groups of 5

2. 3 groups of 2

_____ + _____ = _____

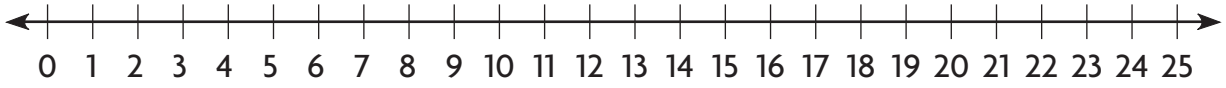
_____ + _____ + _____ = _____

_____ × _____ = _____

_____ × _____ = _____

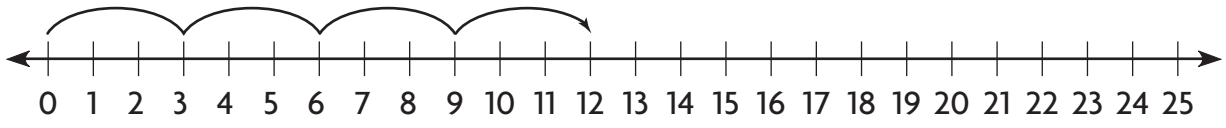
Lesson 3.3

1. Draw jumps on the number line to show 3 groups of 6. Find the product.



3 × 6 = _____

2. Write the multiplication sentence the number line shows.



_____ × _____ = _____

Lesson 3.4

1. Destiny placed her hair ribbons in 3 groups of 5 on her dresser. How many hair ribbons in all does Destiny have? Draw a diagram to solve.

_____

Lesson 3.5

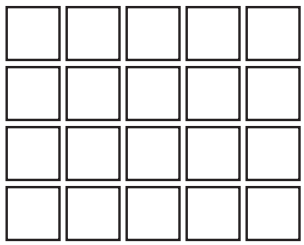
Draw an array to find the product.

1. $2 \times 7 =$ _____

2. $2 \times 6 =$ _____

Lesson 3.6

Write a multiplication sentence for the model. Then use the Commutative Property of Multiplication to write a related multiplication sentence.

1. 

_____ × _____ = _____

_____ × _____ = _____

2. 

_____ × _____ = _____

_____ × _____ = _____

Lesson 3.7

Find the product.

1. $6 \times 0 =$ _____
2. $5 \times 1 =$ _____
3. $0 \times 9 =$ _____
4. $1 \times 8 =$ _____
5. $1 \times 4 =$ _____
6. $9 \times 1 =$ _____
7. $1 \times 0 =$ _____
8. $7 \times 0 =$ _____