

Dear Family,

During the next few weeks, our math class will be learning about division. We will learn how division is related to subtraction, and how multiplication and division are inverse operations.

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

Here is a sample of how your child will be taught to use repeated subtraction to solve division problems.

Vocabulary

dividend The number that is to be divided in a division problem

dividend, divisor, quotient The parts of a division problem. There are two ways to record division.

$$\begin{array}{ccccccc} 10 & \div & 2 & = & 5 \\ \uparrow & & \uparrow & & \uparrow \\ \text{dividend} & & \text{divisor} & & \text{quotient} \end{array}$$

$$\begin{array}{r} \text{divisor} \rightarrow 2 \overline{)10} \\ \uparrow \\ \text{dividend} \end{array} \quad \begin{array}{l} 5 \leftarrow \text{quotient} \end{array}$$



MODEL Use Repeated Subtraction to Divide

This is how we will be using repeated subtraction to divide.

STEP 1

Start with the dividend and subtract the divisor until you reach 0.

$$15 \div 5 = \underline{\quad}$$

$$\begin{array}{r} 15 \\ -5 \\ \hline 10 \end{array} \quad \begin{array}{r} 10 \\ -5 \\ \hline 5 \end{array} \quad \begin{array}{r} 5 \\ -5 \\ \hline 0 \end{array}$$

STEP 2

Count the number of times you subtract 5.

$$\begin{array}{r} 15 \quad 10 \quad 5 \\ -5 \quad -5 \quad -5 \quad (3 \text{ times}) \\ \hline 10 \quad 5 \quad 0 \end{array}$$

There are 3 groups of 5 in 15.

STEP 3

Record the quotient.

$$15 \div 5 = 3, \text{ or}$$

$$\begin{array}{r} 3 \\ 5 \overline{)15} \end{array}$$

Fifteen divided by 5 equals 3.

Tips

Counting Back on a Number Line

Counting back on a number line is another way to find a quotient. On a 0–15 number line, for example, start at 15 and count back by 5s to 0. Then count the number of jumps on a number line (3 jumps) to find that $15 \div 5 = 3$.

Activity

Display a number of objects that are divisible by 5. Have your child use repeated subtraction to solve division problems. For example: “Here are 20 crayons. I want to subtract 5 crayons at a time until there are no crayons left. How many times can I subtract?” Check answers by arranging the objects.

Carta para la casa

Estimada familia,

Durante las próximas semanas, nuestra clase de matemáticas aprenderá sobre la división.

Aprenderemos sobre cómo la división se relaciona con la resta, y cómo la multiplicación y la división son operaciones inversas.

Pueden esperar ver tareas que sirven para practicar la división.

Esta es una muestra de cómo su hijo o hija aprenderá a usar la resta repetida para resolver problemas de división.

Vocabulario

dividendo El número que se divide en un problema de división.

dividendo, divisor, cociente Las partes de un problema de división. Hay dos maneras de anotar la división.

$$\begin{array}{ccccccc}
 10 & \div & 2 & = & 5 \\
 \uparrow & & \uparrow & & \uparrow \\
 \text{dividendo} & & \text{divisor} & & \text{cociente} \\
 \\
 & & & & \frac{5}{\leftarrow \text{cociente}} \\
 \text{divisor} & \rightarrow & 2 \overline{)10} & & \\
 & & \uparrow & & \\
 & & \text{dividendo} & &
 \end{array}$$

MODELO Usar la resta repetida para dividir

Así es como usaremos la resta repetida para dividir.

PASO 1

Comience con el dividendo y réstele el divisor hasta llegar a 0.

$$15 \div 5 = \underline{\quad}$$

$$\begin{array}{r}
 15 \\
 -5 \\
 \hline
 10
 \end{array}
 \quad
 \begin{array}{r}
 10 \\
 -5 \\
 \hline
 5
 \end{array}
 \quad
 \begin{array}{r}
 5 \\
 -5 \\
 \hline
 0
 \end{array}$$

PASO 2

Cuente la cantidad de veces que restó 5.

$$\begin{array}{r}
 15 \quad 10 \quad 5 \\
 -5 \quad -5 \quad -5 \quad (3 \text{ veces}) \\
 \hline
 10 \quad 5 \quad 0
 \end{array}$$

Hay 3 grupos de 5 en 15.

PASO 3

Anote el cociente.

$$15 \div 5 = 3, \text{ o}$$

$$\frac{3}{5 \overline{)15}}$$

Quince dividido entre 5 es igual a 3.

Pistas

Contar hacia atrás en una recta numérica

Contar hacia atrás en una recta numérica es otra manera de hallar un cociente. En una recta numérica de 0–15, por ejemplo, comience en 15 y cuente hacia atrás de 5 en 5 hasta 0. Después cuente la cantidad de saltos que da en la recta numérica (3 saltos), para hallar que $15 \div 5 = 3$.

Actividad

Muestre una cantidad de objetos que sea divisible entre 5. Pida a su hijo o hija que use la resta repetida para resolver problemas de división. Por ejemplo: “Aquí hay 20 crayolas. Quiero restar 5 crayolas a la vez hasta que no queden crayolas. ¿Cuántas veces puedo restar?”. Compruebe las respuestas ordenando los objetos.

Name _____

Problem Solving • Model Division



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

Solve each problem.

1. Six customers at a toy store bought 18 jump ropes. Each customer bought the same number of jump ropes. How many jump ropes did each customer buy?

3 jump ropes

2. Hiro has 36 pictures of his summer trip. He wants to put them in an album. Each page of the album holds 4 pictures. How many pages will Hiro need for his pictures?

3. Katia has 42 crayons in a box. She buys a storage bin that has 6 sections. She puts the same number of crayons in each section. How many crayons does Katia put in each section of the storage bin?

4. Ms. Taylor’s students give cards to each of the 3 class parent helpers. There are 24 cards. How many cards will each helper get if the students give an equal number of cards to each helper?

5. Jamie divides 20 baseball stickers equally among 5 of his friends. How many stickers does each friend get?

Lesson Check (3.OA.3)

1. Maria buys 15 apples at the store and places them into bags. She puts 5 apples into each bag. How many bags does Maria use for all the apples?

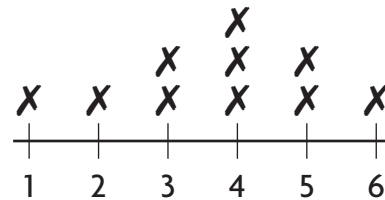
2. Tom's neighbor is fixing a section of his walkway. He has 32 bricks that he is placing in 8 equal rows. How many bricks will Tom's neighbor place in each row?

Spiral Review (3.OA.1, 3.OA.4, 3.OA.5, 3.MD.4)

3. Find the unknown factor.

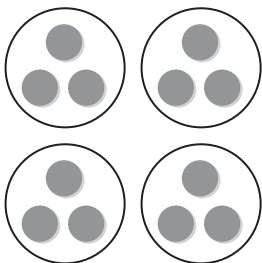
$$7 \times \blacksquare = 56$$

4. How many students practiced the piano more than 3 hours a week?



Piano Practice Hours

5. Count equal groups to find how many there are.
6. What is another way to group the factors?



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

Name _____

Size of Equal Groups**COMMON CORE STANDARD—3.OA.2.**
*Represent and solve problems involving multiplication and division.***Use counters or draw a quick picture. Make equal groups. Complete the table.**

	Counters	Number of Equal Groups	Number in Each Group
1.	15	3	5
2.	21	7	
3.	28	7	
4.	32	4	
5.	9	3	
6.	18	3	
7.	20	5	
8.	16	8	
9.	35	5	
10.	24	3	

Problem Solving

11. Alicia has 12 eggs that she will use to make 4 different cookie recipes. If each recipe calls for the same number of eggs, how many eggs will she use in each recipe?
12. Brett picked 27 flowers from the garden. He plans to give an equal number of flowers to each of 3 people. How many flowers will each person get?

Lesson Check (3.OA.2)

1. Ryan has 21 pencils. He wants to put the same number of pencils in each of 3 pencil holders. How many pencils will he put in each pencil holder?
2. Corrine is setting out 24 plates on 6 tables for a dinner. She sets the same number of plates on each table. How many plates does Corrine set on each table?

Spiral Review (3.OA.1, 3.OA.4, 3.OA.5, 3.OA.9)

3. Each table has 4 legs. How many legs do 4 tables have?
4. Tina has 3 stacks of 5 CDs on each of 3 shelves. How many CDs does she have?

5. What is the unknown factor?

$$7 \times \blacksquare = 35$$

6. Describe the pattern in the table.

Number of packs	1	2	3	4	5
Number of yo-yos	3	6	9	12	?

Name _____

Number of Equal Groups**COMMON CORE STANDARD—3.OA.2.**
*Represent and solve problems involving multiplication and division.***Draw counters on your MathBoard. Then circle equal groups. Complete the table.**

	Counters	Number of Equal Groups	Number in Each Group
1.	24	3	8
2.	35		7
3.	30		5
4.	16		4
5.	12		6
6.	36		9
7.	18		3
8.	15		5
9.	28		4
10.	27		3

Problem Solving

11. In his bookstore, Toby places 21 books on shelves, with 7 books on each shelf. How many shelves does Toby need?

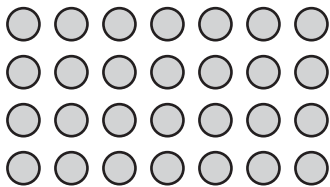
12. Mr. Holden has 32 quarters in stacks of 4 on his desk. How many stacks of quarters are on his desk?

Lesson Check (3.OA.2)

1. Ramon works at a clothing store. He puts 24 pairs of jeans into stacks of 8. How many stacks does Ramon make?
2. There are 36 people waiting in line for a hay ride. Only 6 people can ride on each wagon. If each wagon is full, how many wagons are needed for all 36 people?

Spiral Review (3.OA.3, 3.OA.8, 3.OA.9, 3.NBT.3)

3. What multiplication sentence does the array show?
4. Austin buys 4 boxes of nails for his project. There are 30 nails in each box. How many nails does Austin buy in all?



5. What property does the number sentence show?
 $8 + 0 = 8$
6. Each month for 6 months, Kelsey completes 5 paintings. How many more paintings does she need to complete before she has completed 38 paintings?

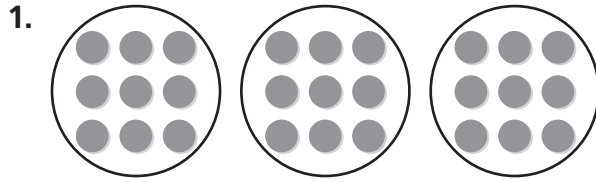
Name _____

Model with Bar Models

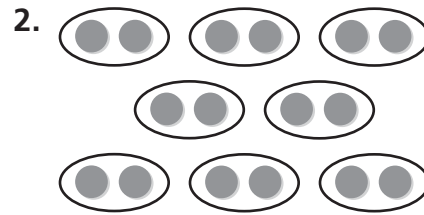


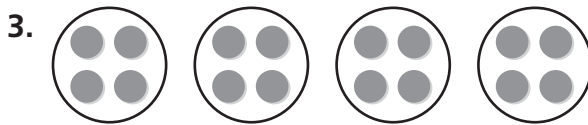
COMMON CORE STANDARD—3.OA.2.
Represent and solve problems involving multiplication and division.

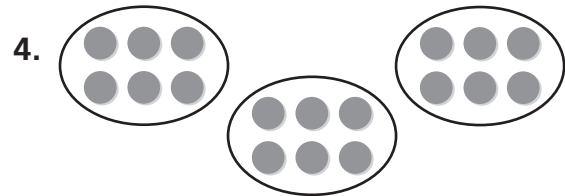
Write a division equation for the picture.



$27 \div 3 = 9$ or $27 \div 9 = 3$

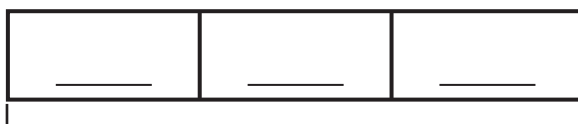






Complete the bar model to solve. Then write a division equation for the bar model.

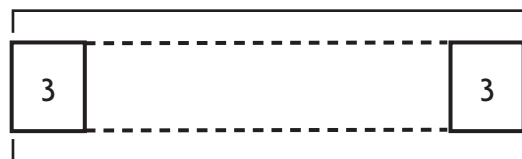
5. There are 15 postcards in 3 equal stacks. How many postcards are in each stack?



15 postcards

6. There are 21 key rings. How many groups of 3 key rings can you make?

groups



21 key rings

Problem Solving

7. Jalyn collected 24 stones. She put them in 4 equal piles. How many stones are in each pile?

8. Tanner has 30 stickers. He puts 6 stickers on each page. On how many pages does he put stickers?

Lesson Check (3.OA.2)

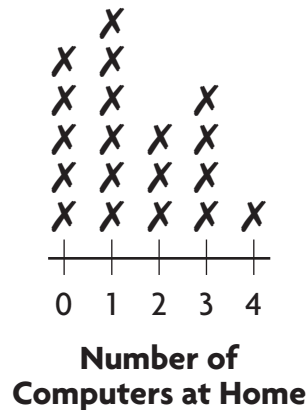
1. Jack and his little sister are stacking 24 blocks. They put the blocks in 3 equal stacks. How many blocks are in each stack?
2. Melissa made 45 greeting cards. She put them in 5 equal piles. How many cards did she put in each pile?

Spiral Review (3.OA.5, 3.OA.7, 3.MD.4)

3. Angie puts 1 stamp on each envelope. She puts stamps on 7 envelopes. How many stamps does Angie use?
4. A carnival ride has 8 cars. Each car holds 4 people. How many people are on the ride if all the cars are full?

Use the line plot for 5–6.

5. How many families have 1 computer at home?
6. How many families have more than 1 computer at home?



Name _____

Relate Subtraction and Division

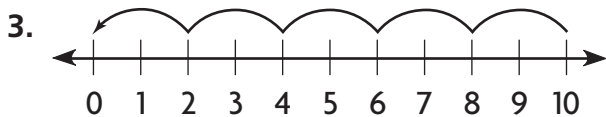


COMMON CORE STANDARD—3.OA.3.
Represent and solve problems involving multiplication and division.

Write a division equation.

1.
$$\begin{array}{r} 16 \\ - 4 \\ \hline 12 \end{array} \quad \begin{array}{r} 12 \\ - 4 \\ \hline 8 \end{array} \quad \begin{array}{r} 8 \\ - 4 \\ \hline 4 \end{array} \quad \begin{array}{r} 4 \\ - 4 \\ \hline 0 \end{array}$$

$$16 \div 4 = 4$$



4.
$$\begin{array}{r} 20 \\ - 5 \\ \hline 15 \end{array} \quad \begin{array}{r} 15 \\ - 5 \\ \hline 10 \end{array} \quad \begin{array}{r} 10 \\ - 5 \\ \hline 5 \end{array} \quad \begin{array}{r} 5 \\ - 5 \\ \hline 0 \end{array}$$

Use repeated subtraction or a number line to solve.

5. $28 \div 7 = \underline{\quad}$

6. $18 \div 6 = \underline{\quad}$

7. $8 \overline{)40}$

8. $9 \overline{)36}$

Problem Solving



9. Mrs. Costa has 18 pencils. She gives 9 pencils to each of her children for school. How many children does Mrs. Costa have?

10. Boël decides to plant rose bushes in her garden. She has 24 bushes. She places 6 bushes in each row. How many rows of rose bushes does she plant in her garden?

Lesson Check (3.OA.3)

1. What division equation is shown?



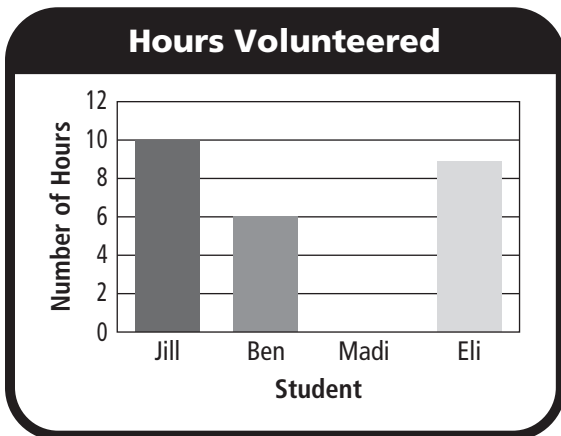
2. Isabella has 35 cups of dog food. She feeds her dogs 5 cups of food each day. For how many days will the dog food last?

Spiral Review (3.OA.3, 3.OA.8, 3.MD.3)

3. Ellen buys 4 bags of oranges. There are 6 oranges in each bag. How many oranges does Ellen buy?

4. Each month for 7 months, Samuel mows 3 lawns. How many more lawns does he need to mow before he has mowed 29 lawns?

Use the graph for 5–6.



5. How many hours did Eli volunteer?

6. Madi volunteered 2 hours less than Jill. At what number should the bar for Madi end?

Name _____

Model with Arrays**COMMON CORE STANDARD—3.OA.3***Represent and solve problems involving multiplication and division.***Use square tiles to make an array. Solve.**

1. How many rows of 4 are in 12?

3 rows

2. How many rows of 3 are in 21?

3. How many rows of 6 are in 30?

4. How many rows of 9 are in 18?

Make an array. Then write a division equation.

5. 20 tiles in 5 rows

6. 28 tiles in 7 rows

7. 18 tiles in 9 rows

8. 36 tiles in 6 rows

Problem Solving

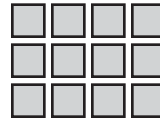
9. A dressmaker has 24 buttons. He needs 3 buttons to make one dress. How many dresses can he make with 24 buttons?

10. Liana buys 36 party favors for her 9 guests. She gives an equal number of favors to each guest. How many party favors does each guest get?

Lesson Check (3.OA.3)

1. Mr. Canton places 24 desks in 6 equal rows. How many desks are in each row?

2. Which division equation is shown by the array?



Spiral Review (3.OA.1, 3.OA.4, 3.OA.5, 3.OA.7)

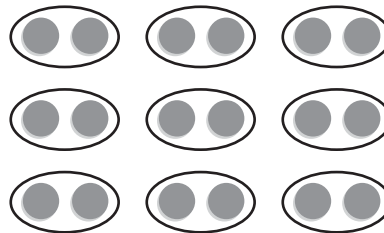
3. Amy has 2 rows of 4 sports trophies on each of her 3 shelves. How many sports trophies does Amy have?

4. What is the unknown factor?

$$9 \times p = 45$$

5. Sam has 7 stacks with 4 quarters each. How many quarters does Sam have?

6. How can you skip count to find how many counters in all?



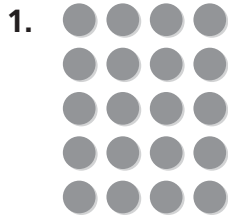
Name _____

Relate Multiplication and Division



COMMON CORE STANDARD—3.OA.6.
Understand properties of multiplication and the relationship between multiplication and division.

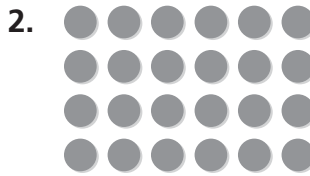
Complete the equations.



5 rows of 4 = 20

$5 \times \underline{4} = 20$

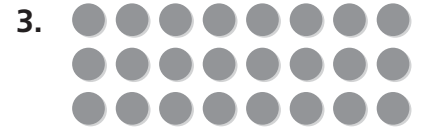
$20 \div 5 = \underline{4}$



4 rows of _____ = 24

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

$24 \div 4 = \underline{\hspace{2cm}}$



3 rows of _____ = 24

$3 \times \underline{\hspace{2cm}} = 24$

$24 \div 3 = \underline{\hspace{2cm}}$

Complete the equations.

4. $4 \times \underline{\hspace{2cm}} = 28$ $28 \div 4 = \underline{\hspace{2cm}}$

5. $6 \times \underline{\hspace{2cm}} = 36$ $36 \div 6 = \underline{\hspace{2cm}}$

6. $7 \times \underline{\hspace{2cm}} = 35$ $35 \div 7 = \underline{\hspace{2cm}}$

7. $7 \times \underline{\hspace{2cm}} = 21$ $21 \div 7 = \underline{\hspace{2cm}}$

8. $9 \times \underline{\hspace{2cm}} = 27$ $27 \div 9 = \underline{\hspace{2cm}}$

9. $2 \times \underline{\hspace{2cm}} = 16$ $16 \div 2 = \underline{\hspace{2cm}}$

10. $4 \times \underline{\hspace{2cm}} = 36$ $36 \div 4 = \underline{\hspace{2cm}}$

11. $8 \times \underline{\hspace{2cm}} = 40$ $40 \div 8 = \underline{\hspace{2cm}}$

Problem Solving



12. Mr. Martin buys 36 muffins for a class breakfast. He places them on plates for his students. If he places 9 muffins on each plate, how many plates does Mr. Martin use?

13. Ralph read 18 books during his summer vacation. He read the same number of books each month for 3 months. How many books did he read each month?

Lesson Check (3.OA.6)

1. What number will complete the equations?

$$6 \times \blacksquare = 24$$

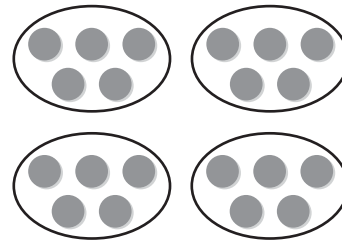
$$24 \div 6 = \blacksquare$$

2. Alice has 14 seashells. She divides them equally between her 2 sisters. How many seashells does each sister get?
-



Spiral Review (3.OA.1, 3.OA.9, 3.MD.3)


3. Sam and Jesse can wash 5 cars each hour. They work for 7 hours each day over 2 days. How many cars did Sam and Jesse wash?
-

4. Keisha skip counted to find how many counters in all. How many equal groups are there?



_____ groups of 5

5. The key for a picture graph showing the number of books students read is: Each  = 2 books. How many books did Nancy read if she has  by her name?
-

6. Jan surveyed her friends to find their favorite season. She recorded  for summer. How many people chose summer as their favorite season?
-

Name _____

ALGEBRA

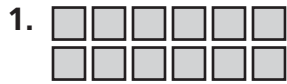
Lesson 6.8

Write Related Facts



COMMON CORE STANDARD—3.OA.7
Multiply and divide within 100.

Write the related facts for the array.

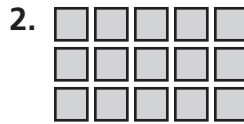


2 × 6 = 12

6 × 2 = 12

12 ÷ 2 = 6

12 ÷ 6 = 2





Write the related facts for the set of numbers.

4. 3, 7, 21

5. 2, 9, 18

6. 4, 8, 32

Complete the related facts.

7. $4 \times 9 = \underline{\quad}$

$9 \times \underline{\quad} = 36$

$36 \div \underline{\quad} = 4$

$\underline{\quad} \div 4 = 9$

8. $\underline{\quad} \times 7 = 35$

$\underline{\quad} \times 5 = 35$

$\underline{\quad} \div 7 = 5$

$35 \div 5 = \underline{\quad}$

9. $6 \times \underline{\quad} = 18$

$3 \times 6 = \underline{\quad}$

$18 \div \underline{\quad} = 3$

$\underline{\quad} \div 3 = 6$

Problem Solving

10. CDs are on sale for \$5 each. Jennifer has \$45 and wants to buy as many as she can. How many CDs can Jennifer buy?

11. Mr. Moore has 21 feet of wallpaper. He cuts it into sections that are each 3 feet long. How many sections does Mr. Moore have?

Lesson Check (3.OA.7)

1. What number completes the set of related facts?

$5 \times \blacksquare = 40$

$40 \div \blacksquare = 5$

$\blacksquare \times 5 = 40$

$40 \div 5 = \blacksquare$

2. Write the related facts for the set of numbers.

4, 7, 28

Spiral Review (3.OA.1, 3.OA.5, 3.OA.7, 3.NBT.3)

3. Beth runs 20 miles each week for 8 weeks. How many miles does Beth run in 8 weeks?

4. Find the product.

5×0

5. Uri's bookcase has 5 shelves. There are 9 books on each shelf. How many books are in Uri's bookcase?

6. There are 6 batteries in one package. How many batteries will 6 packages have?

Name _____

Division Rules for 1 and 0



COMMON CORE STANDARD—3.OA.5
Understand properties of multiplication and the relationship between multiplication and division.

Find the quotient.

1. $3 \div 1 = \underline{3}$ 2. $8 \div 8 = \underline{\hspace{1cm}}$ 3. $\underline{\hspace{1cm}} = 0 \div 6$ 4. $2 \div 2 = \underline{\hspace{1cm}}$

5. $\underline{\hspace{1cm}} = 9 \div 1$ 6. $0 \div 2 = \underline{\hspace{1cm}}$ 7. $0 \div 3 = \underline{\hspace{1cm}}$ 8. $\underline{\hspace{1cm}} = 0 \div 4$

9. $7 \overline{)7}$ 10. $1 \overline{)6}$ 11. $9 \overline{)0}$ 12. $1 \overline{)5}$

13. $1 \overline{)0}$ 14. $4 \overline{)4}$ 15. $1 \overline{)10}$ 16. $2 \overline{)2}$

Problem Solving



17. There are no horses in the stables. There are 3 stables in all. How many horses are in each stable?

18. Jon has 6 kites. He and his friends will each fly 1 kite. How many people in all will fly a kite?

Lesson Check (3.OA.5)

1. Candace has 6 pairs of jeans. She places each pair on its own hanger. How many hangers does Candace use?

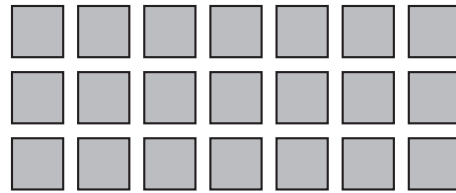
2. There are 0 birds and 4 bird cages. What division equation describes how many birds are in each cage?

Spiral Review (3.OA.5, 3.OA.9, 3.MD.3)

3. There are 7 plates on the table. There are 0 sandwiches on each plate. How many sandwiches are on the plates?

 7×0

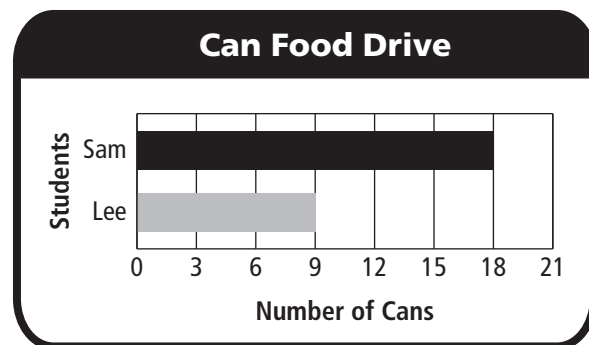
4. Show a way to break apart the array to find the product.



5. Describe the pattern in the table.

Vans	1	2	3	4	5
Students	6	12	18	24	30

6. Use the graph.



How many more cans did Sam bring in than Lee?
