

Name _____

Size of Equal Groups



COMMON CORE STANDARD—3.OA.A.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.	35	5	
7.	24	3	

Problem Solving

- 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?
- 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?

10. **WRITE**  *Math* Describe how to divide 18 strawberries equally between 2 of your friends.

Lesson Check (3.OA.A.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.A.1, 3.OA.A.4, 3.OA.B.5, 3.OA.D.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 a 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.A.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

Problem Solving



- In his bookstore, Toby places 21 books on shelves, with 7 books on each shelf. How many shelves does Toby need?
- Mr. Holden has 32 quarters in stacks of 4 on his desk. How many stacks of quarters are on his desk?

- WRITE** *Math* Write and solve a math problem in which you need to find how many equal groups.

Lesson Check (3.OA.A.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.A.3, 3.OA.D.8, 3.OA.D.9, 3.NBT.A.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?



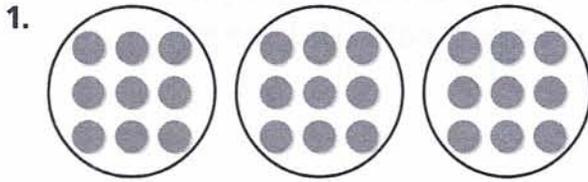
Name _____

Model with Bar Models

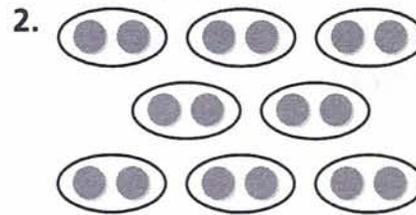


COMMON CORE STANDARD—3.OA.A.2
Represent and solve problems involving multiplication and division.

Write a division equation for the picture.

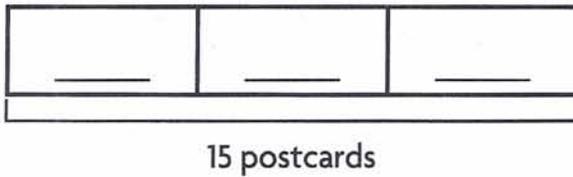


$27 \div 3 = 9$ or $27 \div 9 = 3$

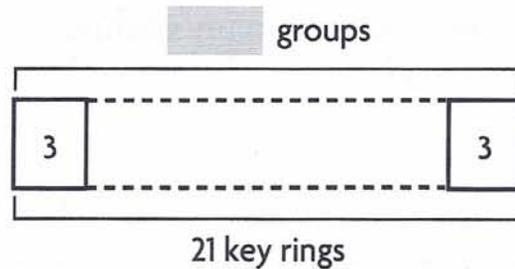


Complete the bar model to solve. Then write a division equation for the bar model.

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



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



Problem Solving

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

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

7. **WRITE** *Math* Describe how to find the number of \$4 train tickets you can buy with \$32.

Lesson Check (3.OA.A.2)

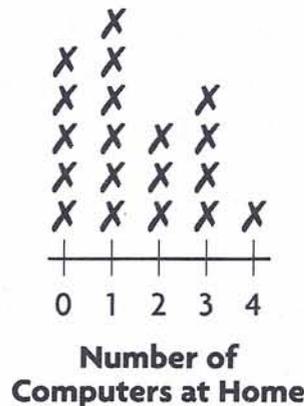
1. Jack and his little sister are stacking 24 blocks. They put the blocks in 3 equal stacks. How many blocks are in each stack?
2. Melissa made 45 greeting cards. She put them in 5 equal piles. How many cards did she put in each pile?

Spiral Review (3.OA.B.5, 3.OA.C.7, 3.MD.B.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 exactly 1 computer at home?
6. How many families have more than 1 computer at home?



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Name _____

Relate Subtraction and Division



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

Write a division equation.

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

$$16 \div 4 = 4$$

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

Use repeated subtraction or a number line to solve.

3. $28 \div 7 =$ _____

4. $18 \div 6 =$ _____

5. $8 \overline{)40}$

6. $9 \overline{)36}$

Problem Solving



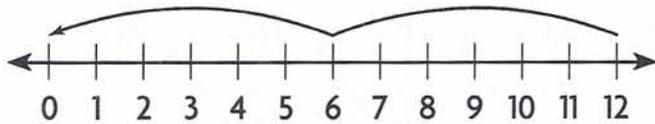
7. Mrs. Costa has 18 pencils. She gives 9 pencils to each of her children for school. How many children does Mrs. Costa have?

8. 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?

9. **WRITE** *Math* Explain why you can use subtraction to solve a division problem.

Lesson Check (3.OA.A.3)

1. What division equation is shown?



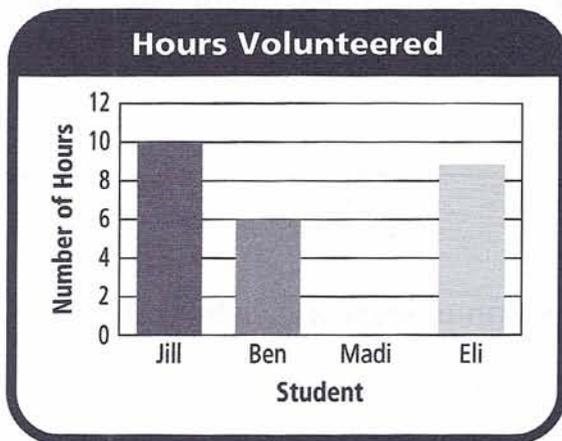
2. Isabella has 35 cups of dog food. She feeds her dogs 5 cups of food each day. For how many days will the dog food last?

Spiral Review (3.OA.A.3, 3.OA.D.8, 3.MD.B.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.A.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?

Make an array. Then write a division equation.

3. 20 tiles in 5 rows

4. 28 tiles in 7 rows

Problem Solving



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

6. 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?

7. **WRITE** *Math* Draw an array to show how to arrange 20 chairs into 5 equal rows. Explain what each part of the array represents.

Lesson Check (3.OA.A.3)

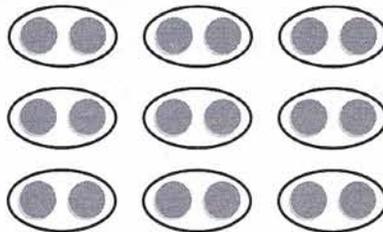
1. Mr. Canton places 24 desks in 6 equal rows. How many desks are in each row?
2. Which division equation is shown by the array?



Spiral Review (3.OA.A.1, 3.OA.A.4, 3.OA.B.5, 3.OA.C.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. Skip count. How many counters are there in all?





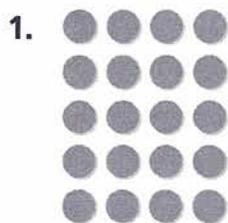
Name _____

Relate Multiplication and Division



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

Complete.



5 rows of 4 = 20

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

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



4 rows of 6 = 24

$4 \times \underline{6} = 24$

$24 \div 4 = \underline{6}$



3 rows of 8 = 24

$3 \times \underline{8} = 24$

$24 \div 3 = \underline{8}$

Complete the equations.

4. $4 \times \underline{\quad} = 28$ $28 \div 4 = \underline{\quad}$

5. $6 \times \underline{\quad} = 36$ $36 \div 6 = \underline{\quad}$

6. $4 \times \underline{\quad} = 36$ $36 \div 4 = \underline{\quad}$

7. $8 \times \underline{\quad} = 40$ $40 \div 8 = \underline{\quad}$

Problem Solving

8. 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?

9. 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?

10. **WRITE** *Math* Use examples to show that multiplication and division are inverse operations.

Lesson Check (3.OA.B.6)

1. What number will complete the equations?

$$6 \times \blacksquare = 24$$

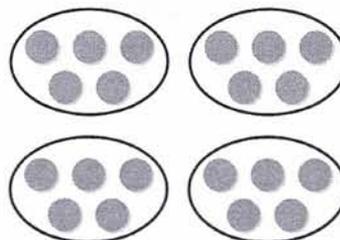
$$24 \div 6 = \blacksquare$$

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

Spiral Review (3.OA.A.1, 3.OA.B.5, 3.MD.B.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 _____

Write Related Facts



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

Write the related facts for the array.



$2 \times 6 = 12$

$6 \times 2 = 12$

$12 \div 2 = 6$

$12 \div 6 = 2$





Write the related facts for the set of numbers.

4. 3, 7, 21

5. 2, 9, 18

6. 4, 8, 32

Problem Solving



7. 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?

8. 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?

9. **WRITE** *Math* Write a division fact. Write the rest of the related facts.

Lesson Check (3.OA.C.7)

1. What number completes the set of related facts?

$5 \times \square = 40$

$40 \div \square = 5$

$\square \times 5 = 40$

$40 \div 5 = \square$

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

4, 7, 28

Spiral Review (3.OA.A.1, 3.OA.B.5, 3.OA.C.7, 3.NBT.A.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.B.5
Understand properties of multiplication and the relationship between multiplication and division.

Find the quotient.

1. $3 \div 1 = \underline{3}$

2. $8 \div 8 = \underline{\quad}$

3. $\underline{\quad} = 0 \div 6$

4. $2 \div 2 = \underline{\quad}$

5. $\underline{\quad} = 9 \div 1$

6. $0 \div 2 = \underline{\quad}$

7. $0 \div 3 = \underline{\quad}$

8. $\underline{\quad} = 0 \div 4$

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?

19. **WRITE** *Math* Compare and contrast the multiplication rules for 1 and 0 with the division rules for 1 and 0.

Lesson Check (3.OA.B.5)

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

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

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

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

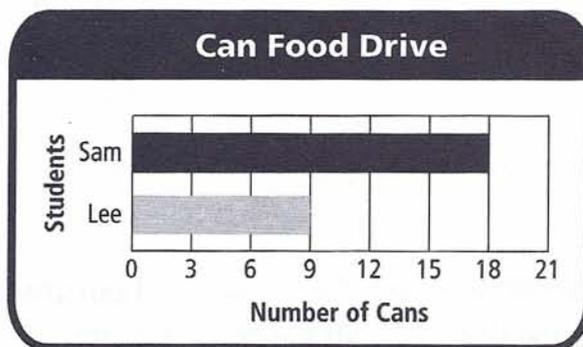
 7×0

- Write one way to break apart the array to find the product.


- Describe a pattern in the table.

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

- Use the graph.



How many more cans did Sam bring in than Lee?



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