



## Family Letter

### Content Overview

Dear Family,

In this unit, students learn multiplications and divisions for 6s, 7s, and 8s, while continuing to practice the rest of the basic multiplications and divisions covered in Unit 1.

Although students practice all the 6s, 7s, and 8s multiplications, they really have only six new multiplications to learn:  $6 \times 6$ ,  $6 \times 7$ ,  $6 \times 8$ ,  $7 \times 7$ ,  $7 \times 8$ , and  $8 \times 8$ . The lessons for these multiplications focus on strategies for finding the products using multiplications they know.

This unit also focuses on word problems. Students are presented with a variety of one-step and two-step word problems.

Here is an example of a two-step problem:

A roller coaster has 7 cars. Each car has 4 seats. If there were 3 empty seats, how many people were on the roller coaster?

Students use the language and context of each problem to determine which operation or operations—multiplication, division, addition, or subtraction—they must use to solve it. Students use a variety of methods to solve two-step word problems.

Please continue to help your child get faster on multiplications and divisions. Use all of the practice materials that your child has brought home. Your support is crucial to your child's learning.

Please call if you have any questions or comments.

Thank you.

Sincerely,  
Your child's teacher



CA CC

Unit 2 addresses the following standards from the *Common Core State Standards for Mathematics with California Additions*: 3.OA.1, 3.OA.2, 3.OA.3, 3.OA.4, 3.OA.5, 3.OA.6, 3.OA.7, 3.OA.8, 3.OA.9, 3.NBT.3, 3.MD.5, 3.MD.5a, 3.MD.5b, 3.MD.6, 3.MD.7, 3.MD.7a, 3.MD.7b and all Mathematical Practices



Carta a la familia

## Un vistazo general al contenido

### Estimada familia:

En esta unidad los estudiantes aprenden las multiplicaciones y divisiones con el 6, el 7 y el 8, mientras siguen practicando las demás multiplicaciones y divisiones que se presentaron en la Unidad 1.

Aunque los estudiantes practican todas las multiplicaciones con el 6, el 7 y el 8, en realidad sólo tienen que aprender seis multiplicaciones nuevas:  $6 \times 6$ ,  $6 \times 7$ ,  $6 \times 8$ ,  $7 \times 7$ ,  $7 \times 8$  y  $8 \times 8$ . Las lecciones acerca de estas multiplicaciones se centran en estrategias para hallar los productos usando multiplicaciones que ya se conocen.

Esta unidad también se centra en problemas verbales. A los estudiantes se les presenta una variedad de problemas de uno y de dos pasos.

Este es un ejemplo de un problema de dos pasos:

Una montaña rusa tiene 7 carros. Cada carro tiene 7 asientos. Si hay 3 asientos vacíos. Cuántas personas había en la montaña rusa?

Los estudiantes aprovechan el lenguaje y el contexto de cada problema para determinar qué operación u operaciones deben usar para resolverlo: multiplicación, división, suma o resta.

Los estudiantes usan una variedad de métodos para resolver problemas de dos pasos.

Por favor continúe ayudando a su niño a practicar las multiplicaciones y las divisiones. Use todos los materiales de práctica que su niño ha llevado a casa. Su apoyo es importante para el aprendizaje de su niño.

Si tiene alguna duda o pregunta, por favor comuníquese conmigo.

Atentamente,  
El maestro de su niño

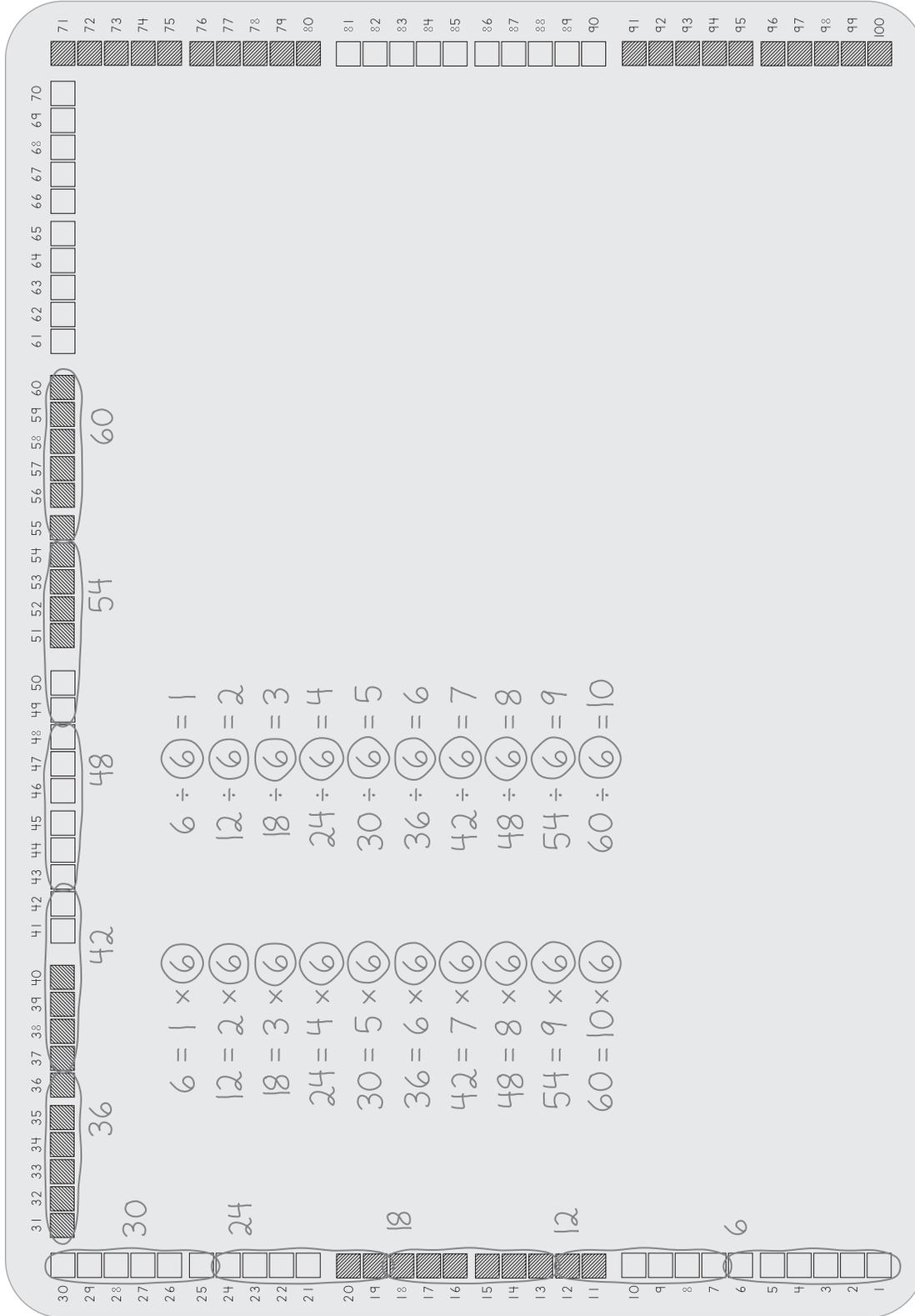


CA CC

En la Unidad 2 se aplican los siguientes estándares auxiliares, contenidos en los *Estándares estatales comunes de matemáticas con adiciones para California*: 3.OA.1, 3.OA.2, 3.OA.3, 3.OA.4, 3.OA.5, 3.OA.6, 3.OA.7, 3.OA.8, 3.OA.9, 3.NBT.3, 3.MD.5, 3.MD.5a, 3.MD.5b, 3.MD.6, 3.MD.7, 3.MD.7a, 3.MD.7b y todos los de prácticas matemáticas.

**PATH to FLUENCY** Explore Patterns with 6s

What patterns do you see below?



© Houghton Mifflin Harcourt Publishing Company

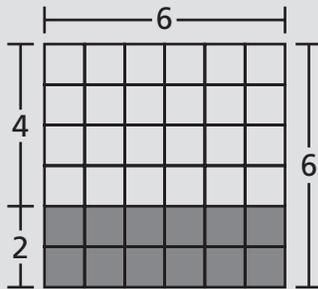


## ► Strategies for Multiplying with 6

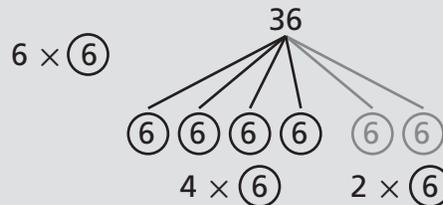
You can use 6s multiplications that you know to find 6s multiplications that you don't know. Here are some strategies for  $6 \times 6$ .

- **Strategy 1:** Start with  $5 \times 6$ , and count by 6 from there.  
 $5 \times 6 = 30$ , the next count by is 36. So,  $6 \times 6 = 36$ .
- **Strategy 2:** Double a 3s multiplication.  
 $6 \times 6$  is twice  $6 \times 3$ , which is 18. So,  $6 \times 6 = 18 + 18 = 36$ .
- **Strategy 3:** Combine two multiplications you know.  
 $4 \times 6 = 24$       4 sixes are 24.  
 $2 \times 6 = 12$       2 sixes are 12.  
 $6 \times 6 = 36$       6 sixes are 36.

Here are two ways to show Strategy 3 with drawings.



unshaded area:  $4 \times 6 = 24$   
 shaded area:  $2 \times 6 = 12$   
 total area:  $6 \times 6 = 36$



**Explanation:**

6 groups of 6 is  
 4 groups of 6 plus  
 2 groups of 6.

- **Strategy 4:** Add 6 on to the 6s multiplication before or subtract 6 from the multiplication ahead.  
 $5 \times 6 = 30$ , add 6 more to get 36. So,  $6 \times 6 = 36$ .

## ► Apply Strategies for 6s Multiplications

1. Choose one of the strategies above. Show how you could use it to find  $7 \times 6$ .
2. Choose one of the other strategies. Show how you could use it to find  $8 \times 6$ .

## Study Sheet C

6s			7s		
Count-bys	Mixed Up $\times$	Mixed Up $\div$	Count-bys	Mixed Up $\times$	Mixed Up $\div$
$1 \times 6 = 6$	$10 \times 6 = 60$	$54 \div 6 = 9$	$1 \times 7 = 7$	$6 \times 7 = 42$	$70 \div 7 = 10$
$2 \times 6 = 12$	$8 \times 6 = 48$	$30 \div 6 = 5$	$2 \times 7 = 14$	$8 \times 7 = 56$	$14 \div 7 = 2$
$3 \times 6 = 18$	$2 \times 6 = 12$	$12 \div 6 = 2$	$3 \times 7 = 21$	$5 \times 7 = 35$	$28 \div 7 = 4$
$4 \times 6 = 24$	$6 \times 6 = 36$	$60 \div 6 = 10$	$4 \times 7 = 28$	$9 \times 7 = 63$	$56 \div 7 = 8$
$5 \times 6 = 30$	$4 \times 6 = 24$	$48 \div 6 = 8$	$5 \times 7 = 35$	$4 \times 7 = 28$	$42 \div 7 = 6$
$6 \times 6 = 36$	$1 \times 6 = 6$	$36 \div 6 = 6$	$6 \times 7 = 42$	$10 \times 7 = 70$	$63 \div 7 = 9$
$7 \times 6 = 42$	$9 \times 6 = 54$	$6 \div 6 = 1$	$7 \times 7 = 49$	$3 \times 7 = 21$	$21 \div 7 = 3$
$8 \times 6 = 48$	$3 \times 6 = 18$	$42 \div 6 = 7$	$8 \times 7 = 56$	$1 \times 7 = 7$	$49 \div 7 = 7$
$9 \times 6 = 54$	$7 \times 6 = 42$	$18 \div 6 = 3$	$9 \times 7 = 63$	$7 \times 7 = 49$	$7 \div 7 = 1$
$10 \times 6 = 60$	$5 \times 6 = 30$	$24 \div 6 = 4$	$10 \times 7 = 70$	$2 \times 7 = 14$	$35 \div 7 = 5$

8s			Squares		
Count-bys	Mixed Up $\times$	Mixed Up $\div$	Count-bys	Mixed Up $\times$	Mixed Up $\div$
$1 \times 8 = 8$	$6 \times 8 = 48$	$16 \div 8 = 2$	$1 \times 1 = 1$	$3 \times 3 = 9$	$25 \div 5 = 5$
$2 \times 8 = 16$	$10 \times 8 = 80$	$40 \div 8 = 5$	$2 \times 2 = 4$	$9 \times 9 = 81$	$4 \div 2 = 2$
$3 \times 8 = 24$	$7 \times 8 = 56$	$72 \div 8 = 9$	$3 \times 3 = 9$	$4 \times 4 = 16$	$81 \div 9 = 9$
$4 \times 8 = 32$	$2 \times 8 = 16$	$32 \div 8 = 4$	$4 \times 4 = 16$	$6 \times 6 = 36$	$9 \div 3 = 3$
$5 \times 8 = 40$	$4 \times 8 = 32$	$8 \div 8 = 1$	$5 \times 5 = 25$	$2 \times 2 = 4$	$36 \div 6 = 6$
$6 \times 8 = 48$	$8 \times 8 = 64$	$80 \div 8 = 10$	$6 \times 6 = 36$	$7 \times 7 = 49$	$100 \div 10 = 10$
$7 \times 8 = 56$	$5 \times 8 = 40$	$64 \div 8 = 8$	$7 \times 7 = 49$	$10 \times 10 = 100$	$16 \div 4 = 4$
$8 \times 8 = 64$	$9 \times 8 = 72$	$24 \div 8 = 3$	$8 \times 8 = 64$	$1 \times 1 = 1$	$49 \div 7 = 7$
$9 \times 8 = 72$	$3 \times 8 = 24$	$56 \div 8 = 7$	$9 \times 9 = 81$	$5 \times 5 = 25$	$1 \div 1 = 1$
$10 \times 8 = 80$	$1 \times 8 = 8$	$48 \div 8 = 6$	$10 \times 10 = 100$	$8 \times 8 = 64$	$64 \div 8 = 8$



© Houghton Mifflin Harcourt Publishing Company

**CA CC** Content Standards 3.OA.1, 3.OA.2, 3.OA.3, 3.OA.4, 3.OA.6, 3.OA.7, 3.MD.5, 3.MD.5a, 3.MD.5b, 3.MD.6, 3.MD.7a, 3.MD.7b Mathematical Practices MP.1, MP.2, MP.4, MP.5

**PATH to FLUENCY** Unknown Number Puzzles

Complete each Unknown Number puzzle.

1.

×	5	2	
	30		48
4		8	32
	45		72

2.

×		3	
6	30		42
4			28
	40	24	56

3.

×	4		8
9		81	
	12		24
	20	45	40

4.

×		3	
	60		20
6	36		
	18	9	6

5.

×	8		2
7		28	
	16	8	
	32	16	8

6.

×	9		
8		56	24
	54	42	18
5			15

7.

×	8		7
8		40	
	32	20	28
	24	15	

8.

×	3	4	
	27	36	81
7			63
			18

9.

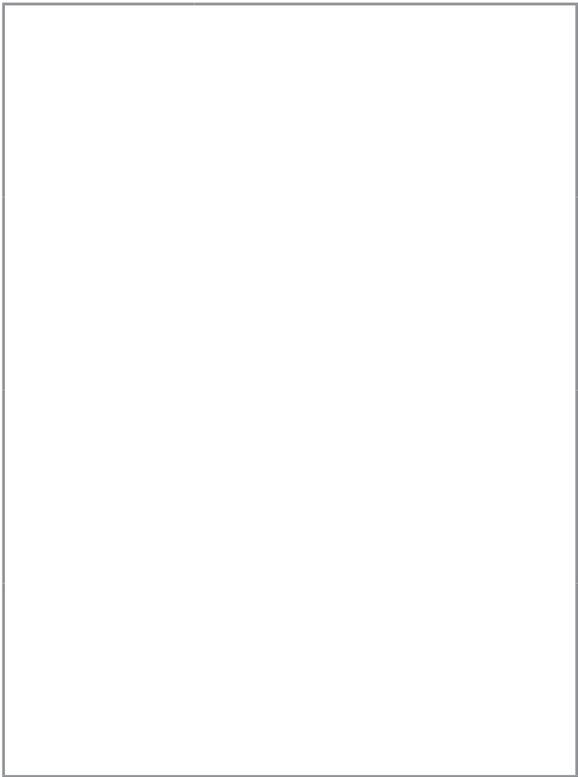
×			10
8	48	16	
7	42	14	
	36		60

### ► Tiling and Multiplying to Find Area

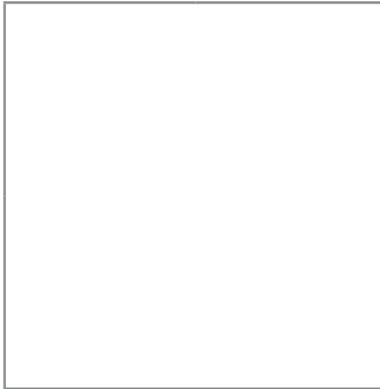
Use inch tiles to find the area. Then label the side lengths and find the area using multiplication.

10. 

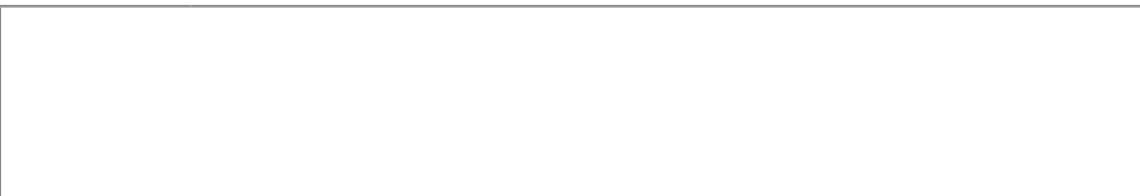
Area: \_\_\_\_\_

11. 

Area: \_\_\_\_\_

12. 

Area: \_\_\_\_\_

13. 

Area: \_\_\_\_\_

## ► Draw Rectangles to Solve Area Word Problems

Draw a rectangle to help solve each problem.

*Show your work.*

Label your answers with the correct units.

14. The mattress has a length of 7 feet and a width of 6 feet. What is the area of the mattress?

\_\_\_\_\_

15. The wading pool at Evans Park is shaped like a square with sides 8 feet long. What is the area of the wading pool?

\_\_\_\_\_

16. Milo's rug has a length of 5 feet and an area of 40 square feet. What is the width of his rug?

\_\_\_\_\_

17. Lana wants to enclose a garden plot. Each side of the garden will be 9 feet. What is the area of the garden?

\_\_\_\_\_

18. A picture has a length of 6 inches and a width of 8 inches. What is the area of the picture?

\_\_\_\_\_

19. A quilt square has sides that are 7 inches long. What is the area of the quilt square?

\_\_\_\_\_

► Draw a Picture to Solve a Problem

Draw a picture to help solve each problem.

20. Ana has a ribbon that is 18 inches long. She cut the ribbon into 3 equal pieces. Then she cut each of those pieces in half. How many small pieces of ribbon are there? How long is each piece?

\_\_\_\_\_

21. A sign is shaped like a square. Eva draws lines on the sign to make 3 equal rectangles. Each rectangle is 3 inches wide and 9 inches long. What is the area of the square?

\_\_\_\_\_

22. Ty uses 20 feet of fencing to make a rectangular garden. He divides the rectangle into 4 equal squares all in one row. The side of each square is 2 feet long. What is the area of the garden?

\_\_\_\_\_

23. Aaron is stacking cans in a grocery store. The bottom row has 7 cans. Each row above has 1 fewer can. How many cans will be stacked in all?

\_\_\_\_\_

24. There are 4 cars in a row. Each car is 13 feet long. There are 6 feet between each car. What is the length from the front of the first car to the back of the last car in the row?

\_\_\_\_\_

▶  Check Sheet 7: 6s and 8s

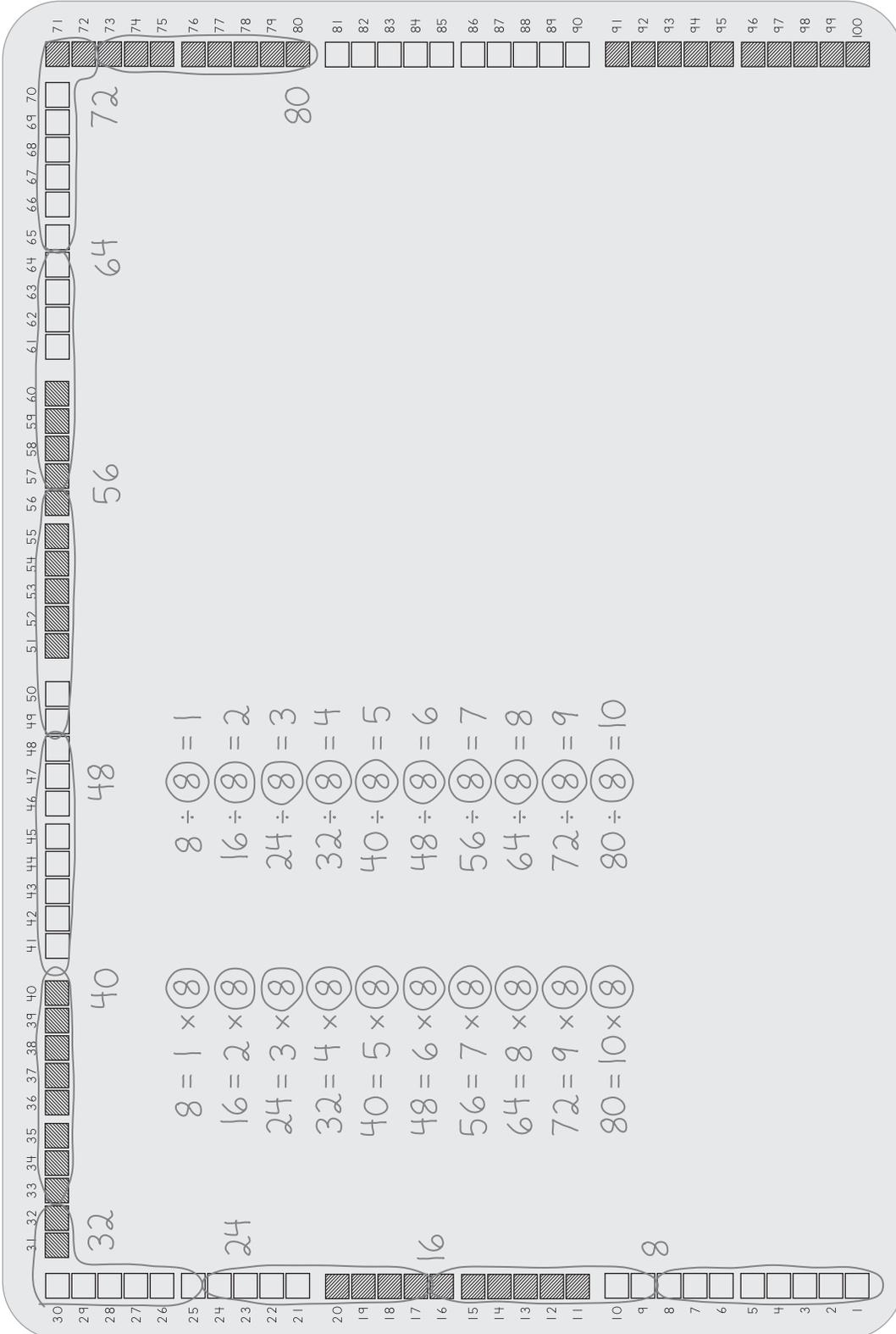
<b>6s Multiplications</b>	<b>6s Divisions</b>	<b>8s Multiplications</b>	<b>8s Divisions</b>
$10 \times 6 = 60$	$24 / 6 = 4$	$2 \times 8 = 16$	$72 / 8 = 9$
$6 \cdot 4 = 24$	$48 \div 6 = 8$	$8 \cdot 10 = 80$	$16 \div 8 = 2$
$6 * 7 = 42$	$60 / 6 = 10$	$3 * 8 = 24$	$40 / 8 = 5$
$2 \times 6 = 12$	$12 \div 6 = 2$	$9 \times 8 = 72$	$8 \div 8 = 1$
$6 \cdot 5 = 30$	$42 / 6 = 7$	$8 \cdot 4 = 32$	$80 / 8 = 10$
$6 * 8 = 48$	$30 \div 6 = 5$	$8 * 7 = 56$	$48 \div 8 = 6$
$9 \times 6 = 54$	$6 / 6 = 1$	$5 \times 8 = 40$	$56 / 8 = 7$
$6 \cdot 1 = 6$	$18 \div 6 = 3$	$8 \cdot 6 = 48$	$24 \div 8 = 3$
$6 * 6 = 36$	$54 / 6 = 9$	$1 * 8 = 8$	$64 / 8 = 8$
$6 \times 3 = 18$	$36 / 6 = 6$	$8 \times 8 = 64$	$32 / 8 = 4$
$6 \cdot 6 = 36$	$48 \div 6 = 8$	$4 \cdot 8 = 32$	$80 \div 8 = 10$
$5 * 6 = 30$	$12 / 6 = 2$	$6 * 8 = 48$	$56 / 8 = 7$
$6 \times 2 = 12$	$24 \div 6 = 4$	$8 \times 3 = 24$	$8 \div 8 = 1$
$4 \cdot 6 = 24$	$60 / 6 = 10$	$7 \cdot 8 = 56$	$24 / 8 = 3$
$6 * 9 = 54$	$6 \div 6 = 1$	$8 * 2 = 16$	$64 \div 8 = 8$
$8 \times 6 = 48$	$42 / 6 = 7$	$8 \times 9 = 72$	$16 / 8 = 2$
$7 \cdot 6 = 42$	$18 \div 6 = 3$	$8 \cdot 1 = 8$	$72 \div 8 = 9$
$6 * 10 = 60$	$36 \div 6 = 6$	$8 * 8 = 64$	$32 \div 8 = 4$
$1 \times 6 = 6$	$30 / 6 = 5$	$10 \times 8 = 80$	$40 / 8 = 5$
$4 \cdot 6 = 24$	$54 \div 6 = 9$	$5 \cdot 8 = 40$	$48 \div 8 = 6$



© Houghton Mifflin Harcourt Publishing Company

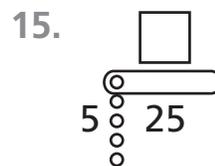
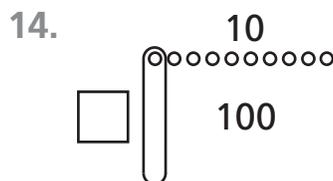
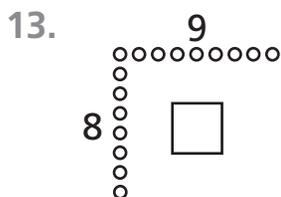
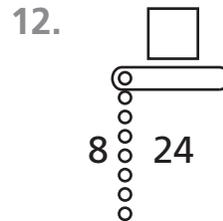
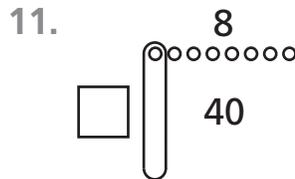
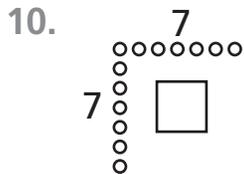
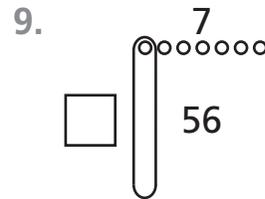
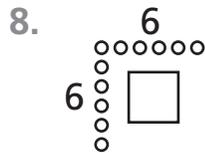
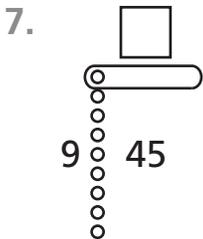
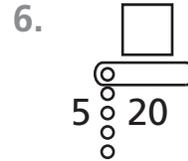
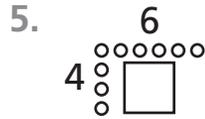
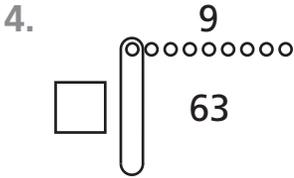
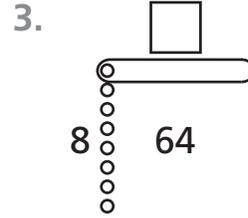
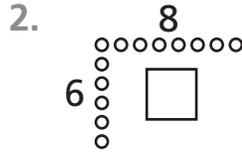
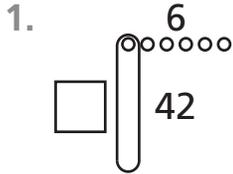
**PATH to FLUENCY** Explore Patterns with 8s

What patterns do you see below?



▶ **PATH to FLUENCY** Fast-Array Drawings

Find the unknown number for each Fast-Array drawing.





2-4

Class Activity

Name \_\_\_\_\_

Date \_\_\_\_\_

**CA CC** Content Standards 3.OA.1, 3.OA.2, 3.OA.3, 3.OA.4, 3.OA.6, 3.OA.7 Mathematical Practices MP.1, MP.3, MP.4, MP.6

### ► Identify the Type and Choose the Operation

Solve. Then circle what type it is and what operation you use.

1. Students in Mr. Till’s class hung their paintings on the wall. They made 6 rows, with 5 paintings in each row. How many paintings did the students hang?

\_\_\_\_\_

**Circle one:**    array            equal groups            area

**Circle one:**    multiplication            division

2. Write your own problem that is the same type as problem 1. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. There are 8 goldfish in each tank at the pet store. If there are 56 goldfish in all, how many tanks are there?

\_\_\_\_\_

**Circle one:**    array            equal groups            area

**Circle one:**    multiplication            division

4. Write your own problem that is the same type as problem 3. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. Pierre built a rectangular pen for his rabbits. The pen is 4 feet wide and 6 feet long. What is the area of the pen? \_\_\_\_\_

**Circle one:**    array            equal groups            area

**Circle one:**    multiplication            division



► Identify the Type and Choose the Operation (continued)

6. Write your own problem that is the same type as problem 5. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. Paulo arranged 72 baseball cards in 9 rows and a certain number of columns. Into how many columns did he arrange the cards? \_\_\_\_\_

**Circle one:** array      equal groups      area  
**Circle one:** multiplication      division

8. Write your own problem that is the same type as Problem 7. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. The store sells bottles of juice in six-packs. Mr. Lee bought 9 six-packs for a picnic. How many bottles did he buy? \_\_\_\_\_

**Circle one:** array      equal groups      area  
**Circle one:** multiplication      division

10. Write your own problem that is the same type as Problem 9. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. **Math Journal** Write an area multiplication problem. Draw a Fast Array to solve it.

## ► What's the Error?

Dear Math Students,

Today my teacher asked me to find the answer to  $8 \times 6$ . Here is what I wrote:

$$8 \times 6 = 14$$

Is my answer correct? If not, please correct my work and tell me what I did wrong.

Your friend,  
Puzzled Penguin



12. Write an answer to the Puzzled Penguin.

---



---

## ► Write and Solve Equations

Write an equation and solve the problem.

13. A large box of crayons holds 60 crayons. There are 10 crayons in each row. How many rows are there?

---

14. A poster covers 12 square feet. The poster is 4 feet long. How wide is the poster?

---

15. There are 7 groups of students with an equal number of students in each group working on a social studies project. There are 28 students working on the project. How many students are there in each group?

---

16. Amanda has 15 bracelets. She gave a number of bracelets to friends. She has 10 bracelets left. How many bracelets did she give to friends?

---

► Write and Solve Equations (continued)

Write an equation and solve the problem.

17. John has 24 baseball cards. He divided them equally among 6 friends. How many cards did each friend get?

\_\_\_\_\_

18. A third grade class of 24 students has 14 girls in it. How many boys are in the class?

\_\_\_\_\_

19. There are 16 pencils left in a container. Eight students will divide the pencils equally. How many pencils will each student get?

\_\_\_\_\_

20. Marc bought 18 golf balls. The golf balls were packaged in boxes of 6. How many boxes of golf balls did Marc buy?

\_\_\_\_\_

21. Lara keeps her DVDs in a case that has 10 sleeves. Each sleeve can hold 6 DVDs. How many DVDs can the case hold?

\_\_\_\_\_

22. Write a problem that can be solved using the equation  $54 \div 6 = n$ , where  $n$  is the number in each group. Then solve the problem.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



**PATH to FLUENCY** Explore Patterns with 7s

What patterns do you see below?

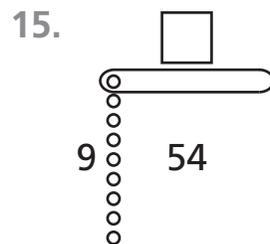
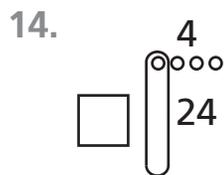
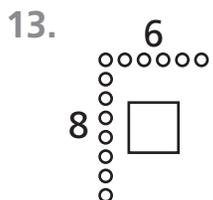
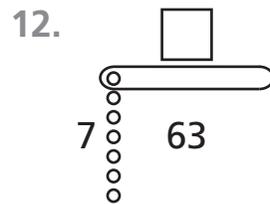
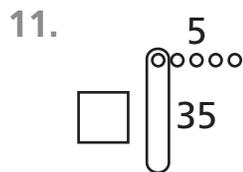
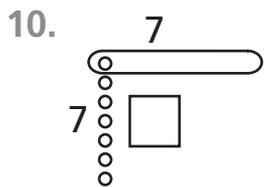
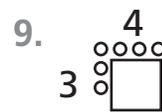
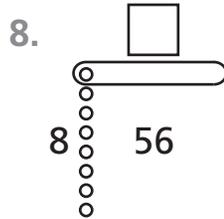
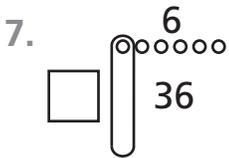
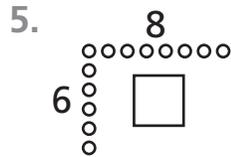
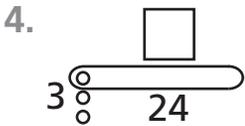
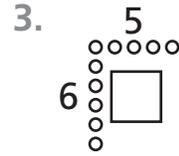
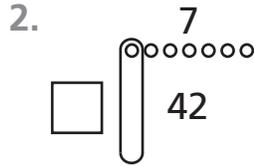
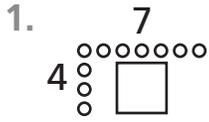
Handwritten multiplication and division equations from the grid:

$7 = 1 \times 7$   
 $14 = 2 \times 7$   
 $21 = 3 \times 7$   
 $28 = 4 \times 7$   
 $35 = 5 \times 7$   
 $42 = 6 \times 7$   
 $49 = 7 \times 7$   
 $56 = 8 \times 7$   
 $63 = 9 \times 7$   
 $70 = 10 \times 7$

$7 \div 7 = 1$   
 $14 \div 7 = 2$   
 $21 \div 7 = 3$   
 $28 \div 7 = 4$   
 $35 \div 7 = 5$   
 $42 \div 7 = 6$   
 $49 \div 7 = 7$   
 $56 \div 7 = 8$   
 $63 \div 7 = 9$   
 $70 \div 7 = 10$

**PATH to FLUENCY** More Fast-Array Drawings

Find the unknown number for each Fast-Array Drawing.




**Check Sheet 8: 7s and Squares**

<b>7s Multiplications</b>	<b>7s Divisions</b>	<b>Squares Multiplications</b>	<b>Squares Divisions</b>
$4 \times 7 = 28$	$14 / 7 = 2$	$8 \times 8 = 64$	$81 / 9 = 9$
$7 \cdot 2 = 14$	$28 \div 7 = 4$	$10 \cdot 10 = 100$	$4 \div 2 = 2$
$7 * 8 = 56$	$70 / 7 = 10$	$3 * 3 = 9$	$25 / 5 = 5$
$7 \times 7 = 49$	$56 \div 7 = 8$	$9 \times 9 = 81$	$1 \div 1 = 1$
$7 \cdot 1 = 7$	$42 / 7 = 6$	$4 \cdot 4 = 16$	$100 / 10 = 10$
$7 * 10 = 70$	$63 \div 7 = 9$	$7 * 7 = 49$	$36 \div 6 = 6$
$3 \times 7 = 21$	$7 / 7 = 1$	$5 \times 5 = 25$	$49 / 7 = 7$
$7 \cdot 6 = 42$	$49 \div 7 = 7$	$6 \cdot 6 = 36$	$9 \div 3 = 3$
$5 * 7 = 35$	$21 / 7 = 3$	$1 * 1 = 1$	$64 / 8 = 8$
$7 \times 9 = 63$	$35 / 7 = 5$	$5 * 5 = 25$	$16 / 4 = 4$
$7 \cdot 4 = 28$	$7 \div 7 = 1$	$1 \cdot 1 = 1$	$100 \div 10 = 10$
$9 * 7 = 63$	$63 / 7 = 9$	$3 \cdot 3 = 9$	$49 / 7 = 7$
$2 \times 7 = 14$	$14 \div 7 = 2$	$10 \times 10 = 100$	$1 \div 1 = 1$
$7 \cdot 5 = 35$	$70 / 7 = 10$	$4 \times 4 = 16$	$9 / 3 = 3$
$8 * 7 = 56$	$21 \div 7 = 3$	$9 * 9 = 81$	$64 \div 8 = 8$
$7 \times 3 = 21$	$49 / 7 = 7$	$2 \times 2 = 4$	$4 / 2 = 2$
$6 \cdot 7 = 42$	$28 \div 7 = 4$	$6 * 6 = 36$	$81 \div 9 = 9$
$10 * 7 = 70$	$56 \div 7 = 8$	$7 \times 7 = 49$	$16 \div 4 = 4$
$1 \times 7 = 7$	$35 / 7 = 5$	$5 \cdot 5 = 25$	$25 / 5 = 5$
$7 \cdot 7 = 49$	$42 \div 7 = 6$	$8 \cdot 8 = 64$	$36 \div 6 = 6$



© Houghton Mifflin Harcourt Publishing Company


**Explore Square Numbers**

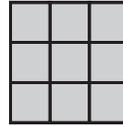
Write an equation to show the area of each large square.



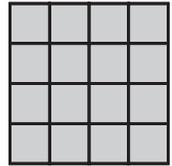
1.  $1 \times 1 = 1$



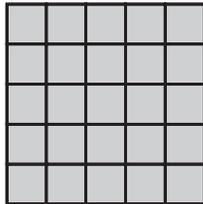
2. \_\_\_\_\_



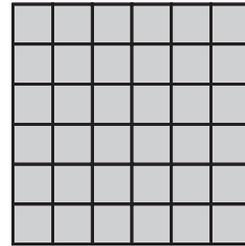
3. \_\_\_\_\_



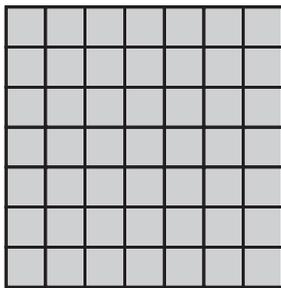
4. \_\_\_\_\_



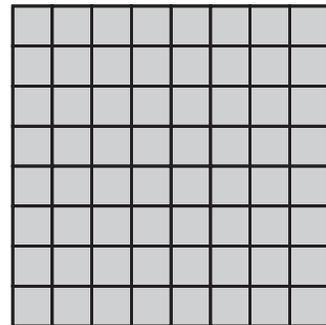
5. \_\_\_\_\_



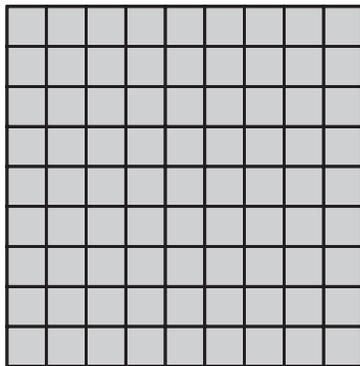
6. \_\_\_\_\_



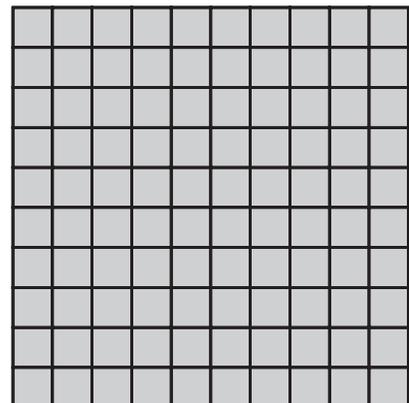
7. \_\_\_\_\_



8. \_\_\_\_\_



9. \_\_\_\_\_



10. \_\_\_\_\_



### ► Look for Patterns

11. List the products in Exercises 1–10 in order.  
 Discuss the patterns you see with your class.

The numbers you listed in Exercise 11 are called **square numbers** because they are the areas of squares with whole-number lengths of sides.

A square number is the product of a whole number and itself. So, if  $n$  is a whole number,  $n \times n$  is a square number.

### ► Patterns on the Multiplication Table

12. In the table below, circle the products that are square numbers. Discuss the patterns you see with your class.

X	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

 Check Sheet 9: 6s, 7s, and 8s

6s, 7s, and 8s Multiplications	6s, 7s, and 8s Multiplications	6s, 7s, and 8s Divisions	6s, 7s, and 8s Divisions
$1 \times 6 = 6$	$0 \times 8 = 0$	$24 / 6 = 4$	$54 / 6 = 9$
$6 \cdot 7 = 42$	$6 \cdot 2 = 12$	$21 \div 7 = 3$	$24 \div 8 = 3$
$3 * 8 = 24$	$4 * 7 = 28$	$16 / 8 = 2$	$14 / 7 = 2$
$6 \times 2 = 12$	$8 \times 3 = 24$	$24 \div 8 = 3$	$32 \div 8 = 4$
$7 \cdot 5 = 35$	$5 \cdot 6 = 30$	$14 / 7 = 2$	$18 / 6 = 3$
$8 * 4 = 32$	$7 * 2 = 14$	$30 \div 6 = 5$	$56 \div 7 = 8$
$6 \times 6 = 36$	$3 \times 8 = 24$	$35 / 7 = 5$	$40 / 8 = 5$
$8 \cdot 7 = 56$	$6 \cdot 4 = 24$	$24 \div 8 = 3$	$35 \div 7 = 5$
$9 * 8 = 72$	$0 * 7 = 0$	$18 / 6 = 3$	$12 / 6 = 2$
$6 \times 10 = 60$	$8 \times 1 = 8$	$12 / 6 = 2$	$21 / 7 = 3$
$7 \cdot 1 = 7$	$8 \cdot 6 = 48$	$42 \div 7 = 6$	$16 \div 8 = 2$
$8 * 3 = 24$	$7 * 9 = 63$	$56 / 8 = 7$	$42 / 6 = 7$
$5 \times 6 = 30$	$10 \times 8 = 80$	$49 \div 7 = 7$	$80 \div 8 = 10$
$4 \cdot 7 = 28$	$6 \cdot 10 = 60$	$16 / 8 = 2$	$36 / 6 = 6$
$2 * 8 = 16$	$3 * 7 = 21$	$60 \div 6 = 10$	$7 \div 7 = 1$
$7 \times 7 = 49$	$8 \times 4 = 32$	$54 / 6 = 9$	$64 / 8 = 8$
$7 \cdot 6 = 42$	$6 \cdot 5 = 30$	$8 \div 8 = 1$	$24 \div 6 = 4$
$8 * 8 = 64$	$7 * 4 = 28$	$28 \div 7 = 4$	$21 \div 7 = 3$
$9 \times 6 = 54$	$8 \times 8 = 64$	$72 / 8 = 9$	$49 / 7 = 7$
$10 \cdot 7 = 70$	$6 \cdot 9 = 54$	$56 \div 7 = 8$	$24 \div 8 = 3$

 Check Sheet 10: 0s–10s

0s–10s Multiplications	0s–10s Multiplications	0s–10s Divisions	0s–10s Divisions
$9 \times 0 = 0$	$9 \times 4 = 36$	$9 / 1 = 9$	$90 / 10 = 9$
$1 \cdot 1 = 1$	$5 \cdot 9 = 45$	$12 \div 3 = 4$	$64 \div 8 = 8$
$2 * 3 = 6$	$6 * 10 = 60$	$14 / 2 = 7$	$15 / 5 = 3$
$1 \times 3 = 3$	$7 \times 3 = 21$	$20 \div 4 = 5$	$12 \div 6 = 2$
$5 \cdot 4 = 20$	$5 \cdot 3 = 15$	$10 / 5 = 2$	$14 / 7 = 2$
$7 * 5 = 35$	$4 * 1 = 4$	$48 \div 8 = 6$	$45 \div 9 = 5$
$6 \times 9 = 54$	$7 \times 5 = 35$	$35 / 7 = 5$	$8 / 1 = 8$
$4 \cdot 7 = 28$	$6 \cdot 3 = 18$	$60 \div 6 = 10$	$30 \div 3 = 10$
$1 * 8 = 8$	$8 * 7 = 56$	$81 / 9 = 9$	$16 / 4 = 4$
$9 \times 8 = 72$	$5 \times 8 = 40$	$20 / 10 = 2$	$8 / 2 = 4$
$2 \cdot 10 = 20$	$9 \cdot 9 = 81$	$16 \div 2 = 8$	$80 \div 10 = 8$
$0 * 7 = 0$	$9 * 10 = 90$	$30 / 5 = 6$	$36 / 4 = 9$
$4 \times 1 = 4$	$0 \times 0 = 0$	$49 \div 7 = 7$	$25 \div 5 = 5$
$2 \cdot 4 = 8$	$1 \cdot 0 = 0$	$60 / 6 = 10$	$42 / 7 = 6$
$10 * 3 = 30$	$1 * 6 = 6$	$30 \div 3 = 10$	$36 \div 6 = 6$
$8 \times 4 = 32$	$7 \times 2 = 14$	$8 / 1 = 8$	$90 / 9 = 10$
$5 \cdot 8 = 40$	$6 \cdot 3 = 18$	$16 \div 4 = 4$	$24 \div 8 = 3$
$4 * 6 = 24$	$4 * 5 = 20$	$16 \div 8 = 2$	$6 \div 2 = 3$
$7 \times 6 = 42$	$6 \times 6 = 36$	$40 / 10 = 4$	$9 / 3 = 3$
$1 \cdot 8 = 8$	$10 \cdot 7 = 70$	$36 \div 9 = 4$	$1 \div 1 = 1$

 **Play Quotient Match and Division Blockout**

Read the rules for playing a game.

Then play the game with your partner.

***Rules for Quotient Match***

Number of players: 2 or 3

What each player will need: Division Strategy Cards for 6s, 7s, and 8s

1. Shuffle the cards. Put the division cards, without answers side up, on the table in 6 rows of 4.
2. Players take turns. On each turn, a player chooses three cards that he or she thinks have the same quotient and turns them over.
3. If all three cards do have the same quotient the player takes them. If the cards do not have the same quotient, the player turns them back over so the without answers side is up.
4. Play continues until no cards remain.

***Rules for Division Blockout***

Number of players: 3

What each player will need: Blockout Game Board (TRB M70), Division Strategy Cards for 6s, 7s, and 8s

1. Players do not write anything on the game board. The first row is for 6s, the second row for 7s, and the third row for 8s, as indicated in the gray column on the left.
2. Each player shuffles his or her Division Strategy Cards for 6s, 7s, 8s, making sure the division sides without answers are up.
3. Repeat Steps 2, 3, and 4 above. This time players will place the Strategy Cards in the appropriate row to indicate whether the unknown factor is 6, 7, or 8.

▶ **PATH to FLUENCY** Play Multiplication Blockout

Read the rules for playing *Multiplication Blockout*. Then play the game with your partner.

**Rules for *Multiplication Block Out***

Number of players: 3

What each player will need: *Blockout* Game Board (TRB M70), Multiplication Strategy Cards for 6s, 7s, and 8s

1. Players choose any 5 factors from 2–9 and write them in any order in the gray spaces at the top of the game board. The players then write the products in the large white spaces. The result will be a scrambled multiplication table.
2. Once the table is complete, players cut off the gray row and gray column that show the factors so that only the products are showing. This will be the game board.
3. Each player shuffles his or her Multiplication Strategy Cards for 6s, 7s, and 8s, making sure the multiplication sides without answers are facing up.
4. One player says, “Go!” and everyone quickly places their Strategy Cards on the game board spaces showing the corresponding products. When a player’s game board is completely filled, he or she shouts, “Blockout!”
5. Everyone stops and checks the player’s work. If all the cards are placed correctly, that player is the winner. If the player has made a mistake, he or she sits out and waits for the next player to shout, “Blockout!”



► Solve Word Problems with 6s, 7s, 8s

Write an equation and solve the problem.

1. Terri counted 32 legs in the lion house at the zoo. How many lions were there?

\_\_\_\_\_

2. Kyle saw 9 ladybugs while he was camping. Each one had 6 legs. How many legs did the 9 ladybugs have in all?

\_\_\_\_\_

3. Adam walks 3 miles a day. How many miles does he walk in a week?

\_\_\_\_\_

4. Nancy's dog Rover eats 6 cups of food a day. In 8 days, how many cups of food does Rover eat?

\_\_\_\_\_

5. The school library has 72 books on the topic of weather. If 8 students shared the books equally, how many books would each student receive?

\_\_\_\_\_

6. The 42 trumpet players in the marching band lined up in 6 equal rows. How many trumpet players were in each row?

\_\_\_\_\_

► Solve Word Problems with 6s, 7s, and 8s (continued)

Write an equation and solve the problem.

7. Susan is having a party. She has 18 cups. She puts them in 6 equal stacks. How many cups are in each stack?

\_\_\_\_\_

8. Regina made an array with 7 rows of 9 blocks. How many blocks are in the array?

\_\_\_\_\_

9. Mr. Rodriguez plans to invite 40 students to a picnic. The invitations come in packs of 8. How many packs of invitations does Mr. Rodriguez need to buy?

\_\_\_\_\_

10. A classroom has 7 rows of 4 desks. How many desks are there in the classroom?

\_\_\_\_\_

11. Write a word problem for  $48 \div 6$  where 6 is the size of the group.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

12. Write a word problem for  $7 \times 9$  where 9 is the number of items in the collection.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_


**Complete a Multiplication Table**

- Look at the factors to complete the Multiplication Table.  
Leave blanks for the products you do not know.

×	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

- Write the multiplications you need to practice.

---



---



---



---



---



---



▶ **PATH to FLUENCY** Scrambled Multiplication Tables

The factors are at the side and top of each table.  
The products are in the white boxes.

Complete each table.

A

×										
	6	30	54	60	42	24	18	12	48	36
	2	10	18	20	14	8	6	4	16	12
	10	50	90	100	70	40	30	20	80	60
	8	40	72	80	56	32	24	16	64	48
	5	25	45	50	35	20	15	10	40	30
	1	5	9	10	7	4	3	2	8	6
	9	45	81	90	63	36	27	18	72	54
	4	20	36	40	28	16	12	8	32	24
	7	35	63	70	49	28	21	14	56	42
	3	15	27	30	21	12	9	6	24	18

B

×										
	27	6	24	21	18	15	12	9	3	
	36	8	32	28	24		16	12	4	40
	9	2	8	7	6	5	4	3	1	10
	18	4	16	14		10	8	6	2	20
		14	56	49	42		28	21	7	
	72		64	56	48	40	32	24	8	80
	45	10	40		30	25	20	15	5	
	54	12	48	42	36	30	24	18	6	60
	90		80	70	60		40	30	10	100
	81	18	72		54	45	36	27	9	

C

×										
	100		20		70	50		90		10
	50	15		20	35		30		40	5
	10	3		4	7		6	9		1
		9		12	21	15		27	24	
		6	4	8			12	18	16	2
		12	8	16	28	20		36	32	
	90	27	18	36	63	45	54		72	
		18	12	24		30	36	54	48	6
		21		28	49		42		56	7
		24		32	56	40		72	64	8

D

×										
	48		42	12	36		18	6		30
	56	28		14		70	21		63	35
			70		60			10		50
		20	35		30		15	5	45	
	32			8		40			36	
	8	4		2			3	1		5
		8	14		12		6		18	10
	64		56		48	80	24	8		40
	72	36		18			27		81	
	24		21		18	30		3	27	


**Dashes 13–16**

Complete each Dash. Check your answers on page 129.

<b>Dash 13</b> <b>6s and 8s</b> <b>Multiplications</b>	<b>Dash 14</b> <b>6s and 8s</b> <b>Divisions</b>	<b>Dash 15</b> <b>7s and 8s</b> <b>Multiplications</b>	<b>Dash 16</b> <b>7s and 8s</b> <b>Divisions</b>
a. $6 \times 9 = \underline{\quad}$	a. $72 \div 8 = \underline{\quad}$	a. $7 \times 3 = \underline{\quad}$	a. $63 \div 7 = \underline{\quad}$
b. $8 * 2 = \underline{\quad}$	b. $12 \div 6 = \underline{\quad}$	b. $8 * 5 = \underline{\quad}$	b. $80 \div 8 = \underline{\quad}$
c. $4 \bullet 6 = \underline{\quad}$	c. $16 \div 8 = \underline{\quad}$	c. $2 \bullet 7 = \underline{\quad}$	c. $14 \div 7 = \underline{\quad}$
d. $7 \times 8 = \underline{\quad}$	d. $24 \div 6 = \underline{\quad}$	d. $1 \times 8 = \underline{\quad}$	d. $16 \div 8 = \underline{\quad}$
e. $6 * 1 = \underline{\quad}$	e. $8 \div 8 = \underline{\quad}$	e. $7 * 9 = \underline{\quad}$	e. $7 \div 7 = \underline{\quad}$
f. $8 \bullet 9 = \underline{\quad}$	f. $6 \div 6 = \underline{\quad}$	f. $8 \bullet 4 = \underline{\quad}$	f. $48 \div 8 = \underline{\quad}$
g. $3 \times 6 = \underline{\quad}$	g. $40 \div 8 = \underline{\quad}$	g. $4 \times 7 = \underline{\quad}$	g. $35 \div 7 = \underline{\quad}$
h. $4 * 8 = \underline{\quad}$	h. $42 \div 6 = \underline{\quad}$	h. $7 * 8 = \underline{\quad}$	h. $32 \div 8 = \underline{\quad}$
i. $6 \bullet 8 = \underline{\quad}$	i. $24 \div 8 = \underline{\quad}$	i. $7 \bullet 1 = \underline{\quad}$	i. $21 \div 7 = \underline{\quad}$
j. $8 \times 1 = \underline{\quad}$	j. $18 \div 6 = \underline{\quad}$	j. $8 \times 2 = \underline{\quad}$	j. $8 \div 8 = \underline{\quad}$
k. $2 * 6 = \underline{\quad}$	k. $48 \div 8 = \underline{\quad}$	k. $5 * 7 = \underline{\quad}$	k. $28 \div 7 = \underline{\quad}$
l. $3 \bullet 8 = \underline{\quad}$	l. $48 \div 6 = \underline{\quad}$	l. $9 \bullet 8 = \underline{\quad}$	l. $40 \div 8 = \underline{\quad}$
m. $6 \times 5 = \underline{\quad}$	m. $64 \div 8 = \underline{\quad}$	m. $7 \times 6 = \underline{\quad}$	m. $49 \div 7 = \underline{\quad}$
n. $8 * 8 = \underline{\quad}$	n. $42 \div 6 = \underline{\quad}$	n. $8 * 3 = \underline{\quad}$	n. $72 \div 8 = \underline{\quad}$
o. $6 \bullet 6 = \underline{\quad}$	o. $56 \div 8 = \underline{\quad}$	o. $7 \bullet 7 = \underline{\quad}$	o. $42 \div 7 = \underline{\quad}$
p. $5 \times 8 = \underline{\quad}$	p. $30 \div 6 = \underline{\quad}$	p. $8 \times 8 = \underline{\quad}$	p. $24 \div 8 = \underline{\quad}$
q. $6 * 7 = \underline{\quad}$	q. $32 \div 8 = \underline{\quad}$	q. $7 * 0 = \underline{\quad}$	q. $56 \div 7 = \underline{\quad}$
r. $8 \times 0 = \underline{\quad}$	r. $54 \div 6 = \underline{\quad}$	r. $6 \bullet 8 = \underline{\quad}$	r. $64 \div 8 = \underline{\quad}$
s. $0 * 6 = \underline{\quad}$	s. $80 \div 8 = \underline{\quad}$	s. $8 \times 0 = \underline{\quad}$	s. $70 \div 7 = \underline{\quad}$
t. $6 \bullet 10 = \underline{\quad}$	t. $60 \div 6 = \underline{\quad}$	t. $7 * 10 = \underline{\quad}$	t. $56 \div 8 = \underline{\quad}$

 **Dashes 17–20**

Complete each Dash. Check your answers on page 129.

<b>Dash 17 6s and 7s Multiplications</b>	<b>Dash 18 6s and 7s Divisions</b>	<b>Dash 19 6s, 7s, 8s Multiplications</b>	<b>Dash 20 6s, 7s, 8s Divisions</b>
a. $6 \times 6 = \underline{\quad}$	a. $70 \div 7 = \underline{\quad}$	a. $7 \times 7 = \underline{\quad}$	a. $21 \div 7 = \underline{\quad}$
b. $7 * 7 = \underline{\quad}$	b. $60 \div 6 = \underline{\quad}$	b. $6 \cdot 3 = \underline{\quad}$	b. $16 \div 8 = \underline{\quad}$
c. $3 \cdot 6 = \underline{\quad}$	c. $28 \div 7 = \underline{\quad}$	c. $8 * 6 = \underline{\quad}$	c. $54 \div 6 = \underline{\quad}$
d. $8 \times 7 = \underline{\quad}$	d. $30 \div 6 = \underline{\quad}$	d. $6 \times 6 = \underline{\quad}$	d. $48 \div 8 = \underline{\quad}$
e. $6 * 1 = \underline{\quad}$	e. $42 \div 7 = \underline{\quad}$	e. $7 \cdot 6 = \underline{\quad}$	e. $64 \div 8 = \underline{\quad}$
f. $7 \cdot 2 = \underline{\quad}$	f. $24 \div 6 = \underline{\quad}$	f. $4 * 7 = \underline{\quad}$	f. $42 \div 6 = \underline{\quad}$
g. $9 \times 6 = \underline{\quad}$	g. $35 \div 7 = \underline{\quad}$	g. $9 \times 7 = \underline{\quad}$	g. $56 \div 7 = \underline{\quad}$
h. $9 * 7 = \underline{\quad}$	h. $12 \div 6 = \underline{\quad}$	h. $6 \cdot 9 = \underline{\quad}$	h. $72 \div 8 = \underline{\quad}$
i. $6 \cdot 8 = \underline{\quad}$	i. $7 \div 7 = \underline{\quad}$	i. $6 * 4 = \underline{\quad}$	i. $18 \div 6 = \underline{\quad}$
j. $7 \times 3 = \underline{\quad}$	j. $36 \div 6 = \underline{\quad}$	j. $8 \times 8 = \underline{\quad}$	j. $28 \div 7 = \underline{\quad}$
k. $7 * 6 = \underline{\quad}$	k. $21 \div 7 = \underline{\quad}$	k. $7 \cdot 3 = \underline{\quad}$	k. $56 \div 8 = \underline{\quad}$
l. $1 \cdot 7 = \underline{\quad}$	l. $48 \div 6 = \underline{\quad}$	l. $8 * 7 = \underline{\quad}$	l. $30 \div 6 = \underline{\quad}$
m. $6 \times 2 = \underline{\quad}$	m. $63 \div 7 = \underline{\quad}$	m. $6 \times 7 = \underline{\quad}$	m. $63 \div 7 = \underline{\quad}$
n. $7 * 5 = \underline{\quad}$	n. $6 \div 6 = \underline{\quad}$	n. $3 \cdot 6 = \underline{\quad}$	n. $32 \div 8 = \underline{\quad}$
o. $4 \cdot 6 = \underline{\quad}$	o. $56 \div 7 = \underline{\quad}$	o. $2 * 7 = \underline{\quad}$	o. $48 \div 6 = \underline{\quad}$
p. $6 \times 7 = \underline{\quad}$	p. $18 \div 6 = \underline{\quad}$	p. $9 \times 8 = \underline{\quad}$	p. $49 \div 7 = \underline{\quad}$
q. $6 * 5 = \underline{\quad}$	q. $49 \div 7 = \underline{\quad}$	q. $5 \cdot 6 = \underline{\quad}$	q. $36 \div 6 = \underline{\quad}$
r. $7 \cdot 4 = \underline{\quad}$	r. $42 \div 6 = \underline{\quad}$	r. $7 * 8 = \underline{\quad}$	r. $24 \div 8 = \underline{\quad}$
s. $6 \times 10 = \underline{\quad}$	s. $14 \div 7 = \underline{\quad}$	s. $3 \times 7 = \underline{\quad}$	s. $42 \div 7 = \underline{\quad}$
t. $7 \times 10 = \underline{\quad}$	t. $54 \div 6 = \underline{\quad}$	t. $9 \cdot 6 = \underline{\quad}$	t. $24 \div 6 = \underline{\quad}$


**Dashes 9B–12B**

Complete each multiplication and division Dash.  
Check your answers on page 130.

<b>Dash 9B</b> <b>2s, 5s, 9s, 10s</b> <b>Multiplications</b>	<b>Dash 10B</b> <b>2s, 5s, 9s, 10s</b> <b>Divisions</b>	<b>Dash 11B</b> <b>0s, 1s, 3s, 4s</b> <b>Multiplications</b>	<b>Dash 12B</b> <b>1s, 3s, 4s</b> <b>Divisions</b>
a. $6 \times 2 = \underline{\quad}$	a. $18 \div 2 = \underline{\quad}$	a. $7 \times 1 = \underline{\quad}$	a. $2 \div 1 = \underline{\quad}$
b. $9 \cdot 4 = \underline{\quad}$	b. $25 \div 5 = \underline{\quad}$	b. $0 \cdot 6 = \underline{\quad}$	b. $28 \div 4 = \underline{\quad}$
c. $8 * 5 = \underline{\quad}$	c. $70 \div 10 = \underline{\quad}$	c. $4 * 4 = \underline{\quad}$	c. $3 \div 3 = \underline{\quad}$
d. $1 \times 10 = \underline{\quad}$	d. $54 \div 9 = \underline{\quad}$	d. $7 \times 3 = \underline{\quad}$	d. $1 \div 1 = \underline{\quad}$
e. $2 \cdot 7 = \underline{\quad}$	e. $50 \div 5 = \underline{\quad}$	e. $3 \cdot 1 = \underline{\quad}$	e. $40 \div 4 = \underline{\quad}$
f. $9 * 9 = \underline{\quad}$	f. $81 \div 9 = \underline{\quad}$	f. $4 * 7 = \underline{\quad}$	f. $21 \div 3 = \underline{\quad}$
g. $5 \times 6 = \underline{\quad}$	g. $8 \div 2 = \underline{\quad}$	g. $9 \times 0 = \underline{\quad}$	g. $5 \div 1 = \underline{\quad}$
h. $10 \cdot 4 = \underline{\quad}$	h. $90 \div 10 = \underline{\quad}$	h. $1 \cdot 1 = \underline{\quad}$	h. $16 \div 4 = \underline{\quad}$
i. $7 * 5 = \underline{\quad}$	i. $35 \div 5 = \underline{\quad}$	i. $3 * 4 = \underline{\quad}$	i. $15 \div 3 = \underline{\quad}$
j. $8 \times 2 = \underline{\quad}$	j. $27 \div 9 = \underline{\quad}$	j. $4 \times 9 = \underline{\quad}$	j. $6 \div 1 = \underline{\quad}$
k. $10 \cdot 10 = \underline{\quad}$	k. $2 \div 2 = \underline{\quad}$	k. $8 \cdot 1 = \underline{\quad}$	k. $12 \div 4 = \underline{\quad}$
l. $5 * 3 = \underline{\quad}$	l. $36 \div 9 = \underline{\quad}$	l. $3 * 3 = \underline{\quad}$	l. $27 \div 3 = \underline{\quad}$
m. $9 \times 7 = \underline{\quad}$	m. $45 \div 5 = \underline{\quad}$	m. $0 \times 4 = \underline{\quad}$	m. $9 \div 1 = \underline{\quad}$
n. $9 \cdot 2 = \underline{\quad}$	n. $14 \div 2 = \underline{\quad}$	n. $10 \cdot 3 = \underline{\quad}$	n. $8 \div 4 = \underline{\quad}$
o. $5 * 5 = \underline{\quad}$	o. $20 \div 10 = \underline{\quad}$	o. $6 * 4 = \underline{\quad}$	o. $12 \div 3 = \underline{\quad}$
p. $6 \times 9 = \underline{\quad}$	p. $9 \div 9 = \underline{\quad}$	p. $1 \times 4 = \underline{\quad}$	p. $3 \div 1 = \underline{\quad}$
q. $5 \cdot 2 = \underline{\quad}$	q. $20 \div 5 = \underline{\quad}$	q. $3 \cdot 6 = \underline{\quad}$	q. $36 \div 4 = \underline{\quad}$
r. $9 * 5 = \underline{\quad}$	r. $45 \div 9 = \underline{\quad}$	r. $4 * 8 = \underline{\quad}$	r. $6 \div 3 = \underline{\quad}$
s. $8 \times 10 = \underline{\quad}$	s. $5 \div 5 = \underline{\quad}$	s. $7 \times 0 = \underline{\quad}$	s. $4 \div 1 = \underline{\quad}$
t. $5 \cdot 10 = \underline{\quad}$	t. $4 \div 2 = \underline{\quad}$	t. $5 \cdot 3 = \underline{\quad}$	t. $4 \div 4 = \underline{\quad}$

 **Dashes 9C–12C**

Complete each Dash. Check your answers on page 130.

<b>Dash 9C</b> <b>2s, 5, 9s, 10s</b> <b>Multiplications</b>	<b>Dash 10C</b> <b>2s, 5, 9s, 10s</b> <b>Divisions</b>	<b>Dash 11C</b> <b>0s, 1s, 3s, 4s</b> <b>Multiplications</b>	<b>Dash 12C</b> <b>1s, 3s, 4s</b> <b>Divisions</b>
a. $5 \times 8 =$ _____	a. $36 \div 9 =$ _____	a. $0 \times 7 =$ _____	a. $4 / 1 =$ _____
b. $9 * 9 =$ _____	b. $30 / 5 =$ _____	b. $1 * 4 =$ _____	b. $15 \div 3 =$ _____
c. $10 \bullet 7 =$ _____	c. $18 \div 2 =$ _____	c. $3 \bullet 6 =$ _____	c. $24 / 4 =$ _____
d. $4 \times 5 =$ _____	d. $80 / 10 =$ _____	d. $4 \times 9 =$ _____	d. $9 \div 1 =$ _____
e. $5 * 5 =$ _____	e. $40 \div 5 =$ _____	e. $8 * 0 =$ _____	e. $21 / 3 =$ _____
f. $10 \bullet 3 =$ _____	f. $72 / 9 =$ _____	f. $7 * 1 =$ _____	f. $12 \div 4 =$ _____
g. $1 \times 5 =$ _____	g. $6 \div 2 =$ _____	g. $4 \bullet 3 =$ _____	g. $5 / 1 =$ _____
h. $3 * 9 =$ _____	h. $54 / 9 =$ _____	h. $4 \times 4 =$ _____	h. $3 \div 3 =$ _____
i. $9 \bullet 6 =$ _____	i. $25 \div 5 =$ _____	i. $0 * 5 =$ _____	i. $32 / 4 =$ _____
j. $10 \times 8 =$ _____	j. $10 / 10 =$ _____	j. $1 \bullet 6 =$ _____	j. $2 \div 1 =$ _____
k. $2 * 9 =$ _____	k. $45 \div 5 =$ _____	k. $3 \times 2 =$ _____	k. $18 / 3 =$ _____
l. $6 \bullet 2 =$ _____	l. $27 / 9 =$ _____	l. $4 * 7 =$ _____	l. $36 \div 4 =$ _____
m. $6 \times 10 =$ _____	m. $14 \div 2 =$ _____	m. $1 \bullet 0 =$ _____	m. $7 / 1 =$ _____
n. $8 * 9 =$ _____	n. $35 / 5 =$ _____	n. $2 \times 1 =$ _____	n. $24 \div 3 =$ _____
o. $8 \bullet 2 =$ _____	o. $90 \div 9 =$ _____	o. $9 * 3 =$ _____	o. $4 / 4 =$ _____
p. $4 \times 2 =$ _____	p. $90 / 10 =$ _____	p. $2 \bullet 4 =$ _____	p. $6 \div 1 =$ _____
q. $10 * 5 =$ _____	q. $63 \div 9 =$ _____	q. $0 \times 3 =$ _____	q. $12 / 3 =$ _____
r. $10 \bullet 10 =$ _____	r. $15 / 5 =$ _____	r. $1 * 1 =$ _____	r. $20 \div 4 =$ _____
s. $9 \times 6 =$ _____	s. $50 \div 10 =$ _____	s. $3 \bullet 9 =$ _____	s. $8 / 1 =$ _____
t. $5 * 7 =$ _____	t. $8 / 2 =$ _____	t. $4 \times 5 =$ _____	t. $27 \div 3 =$ _____


**Answers to Dashes 13–20**

Use this sheet to check your answers to the Dashes on pages 125 and 126.

<b>Dash 13</b> ×	<b>Dash 14</b> ÷	<b>Dash 15</b> ×	<b>Dash 16</b> ÷	<b>Dash 17</b> ×	<b>Dash 18</b> ÷	<b>Dash 19</b> ×	<b>Dash 20</b> ÷
a. 54	a. 9	a. 21	a. 9	a. 36	a. 10	a. 49	a. 3
b. 16	b. 2	b. 40	b. 10	b. 49	b. 10	b. 18	b. 2
c. 24	c. 2	c. 14	c. 2	c. 18	c. 4	c. 48	c. 9
d. 56	d. 4	d. 8	d. 2	d. 56	d. 5	d. 36	d. 6
e. 6	e. 1	e. 63	e. 1	e. 6	e. 6	e. 42	e. 8
f. 72	f. 1	f. 32	f. 6	f. 14	f. 4	f. 28	f. 7
g. 18	g. 5	g. 28	g. 5	g. 54	g. 5	g. 63	g. 8
h. 32	h. 7	h. 56	h. 4	h. 63	h. 2	h. 54	h. 9
i. 48	i. 3	i. 7	i. 3	i. 48	i. 1	i. 24	i. 3
j. 8	j. 3	j. 16	j. 1	j. 21	j. 6	j. 64	j. 4
k. 12	k. 6	k. 35	k. 4	k. 42	k. 3	k. 21	k. 7
l. 24	l. 8	l. 72	l. 5	l. 7	l. 8	l. 56	l. 5
m. 30	m. 8	m. 42	m. 7	m. 12	m. 9	m. 42	m. 9
n. 64	n. 7	n. 24	n. 9	n. 35	n. 1	n. 18	n. 4
o. 36	o. 7	o. 49	o. 6	o. 24	o. 8	o. 14	o. 8
p. 40	p. 5	p. 64	p. 3	p. 42	p. 3	p. 72	p. 7
q. 42	q. 4	q. 0	q. 8	q. 30	q. 7	q. 30	q. 6
r. 0	r. 9	r. 48	r. 8	r. 28	r. 7	r. 56	r. 3
s. 0	s. 10	s. 0	s. 10	s. 60	s. 2	s. 21	s. 6
t. 60	t. 10	t. 70	t. 7	t. 70	t. 9	t. 54	t. 4


**Answers to Dashes 9B–12C**

Use this sheet to check your answers to the Dashes on pages 127 and 128.

<b>Dash 9B</b> ×	<b>Dash 10B</b> ÷	<b>Dash 11B</b> ×	<b>Dash 12B</b> ÷	<b>Dash 9C</b> ×	<b>Dash 10C</b> ÷	<b>Dash 11C</b> ×	<b>Dash 12C</b> ÷
a. 12	a. 9	a. 7	a. 2	a. 40	a. 4	a. 0	a. 4
b. 36	b. 5	b. 0	b. 7	b. 81	b. 6	b. 4	b. 5
c. 40	c. 7	c. 16	c. 1	c. 70	c. 9	c. 18	c. 6
d. 10	d. 6	d. 21	d. 1	d. 20	d. 8	d. 36	d. 9
e. 14	e. 10	e. 3	e. 10	e. 25	e. 8	e. 0	e. 7
f. 81	f. 9	f. 28	f. 7	f. 30	f. 8	f. 7	f. 3
g. 30	g. 4	g. 0	g. 5	g. 5	g. 3	g. 12	g. 5
h. 40	h. 9	h. 1	h. 4	h. 27	h. 6	h. 16	h. 1
i. 35	i. 7	i. 12	i. 5	i. 54	i. 5	i. 0	i. 8
j. 16	j. 3	j. 36	j. 6	j. 80	j. 1	j. 6	j. 2
k. 100	k. 1	k. 8	k. 3	k. 18	k. 9	k. 6	k. 6
l. 15	l. 4	l. 9	l. 9	l. 12	l. 3	l. 28	l. 9
m. 63	m. 9	m. 0	m. 9	m. 60	m. 7	m. 0	m. 7
n. 18	n. 7	n. 30	n. 2	n. 72	n. 7	n. 2	n. 8
o. 25	o. 2	o. 24	o. 4	o. 16	o. 10	o. 27	o. 1
p. 54	p. 1	p. 4	p. 3	p. 8	p. 9	p. 8	p. 6
q. 10	q. 4	q. 18	q. 9	q. 50	q. 7	q. 0	q. 4
r. 45	r. 5	r. 32	r. 2	r. 100	r. 3	r. 1	r. 5
s. 80	s. 1	s. 0	s. 4	s. 54	s. 5	s. 27	s. 8
t. 50	t. 2	t. 15	t. 1	t. 35	t. 4	t. 20	t. 9

### ► Choose the Operation

Write an equation and solve the problem.

- 1. Ernie helped his mother work in the yard for 3 days. He earned \$6 each day. How much did he earn in all?
- 2. Ernie helped his mother work in the yard for 3 days. He earned \$6 the first day, \$5 the second day, and \$7 the third day. How much did he earn in all?

\_\_\_\_\_

\_\_\_\_\_

- 3. Troy had \$18. He gave \$6 to each of his brothers and had no money left. How many brothers does Troy have?
- 4. Troy gave \$18 to his brothers. He gave \$4 to Raj, \$7 to Darnell, and the rest to Jai. How much money did Jai get?

\_\_\_\_\_

\_\_\_\_\_

- 5. Jinja has 4 cousins. Grant has 7 more cousins than Jinja. How many cousins does Grant have?
- 6. Jinja has 4 cousins. Grant has 7 times as many cousins as Jinja. How many cousins does Grant have?

\_\_\_\_\_

\_\_\_\_\_

- 7. Camille has 15 fewer books than Jane has. Camille has 12 books. How many does Jane have?
- 8. Camille has 4 more books than Jane has. Camille has 15 books. How many books does Jane have?

\_\_\_\_\_

\_\_\_\_\_

► Write an Equation

Write an equation and solve the problem.

*Show your work.*

9. Luke had a \$5 bill. He spent \$3 on a sandwich. How much change did he get?

\_\_\_\_\_

10. Ramona is putting tiles on the kitchen floor. She will lay 8 rows of tiles, with 7 tiles in each row. How many tiles will Ramona use?

\_\_\_\_\_

11. Josh earned As on 6 tests last year. Jenna earned As on 6 times as many tests. How many As did Jenna earn?

\_\_\_\_\_

12. Sophie bought a stuffed animal for \$3 and a board game for \$7. How much money did Sophie spend?

\_\_\_\_\_

13. The Duarte family has 15 pets. Each of the 3 Duarte children care for the same number of pets. How many pets does each child care for?

\_\_\_\_\_

14. Ahmed spent \$9 on a CD. Zal paid \$6 more for the same CD at a different store. How much did Zal spend on the CD?

\_\_\_\_\_

**► Write the Question**

**Write a question for the given information and solve.**

15. Anna read 383 pages this month. Chris read 416 pages.

**Question:** \_\_\_\_\_

**Solution:** \_\_\_\_\_

16. Marisol had 128 beads in her jewelry box. She gave away 56 of them.

**Question:** \_\_\_\_\_

**Solution:** \_\_\_\_\_

17. Louis put 72 marbles in 8 bags. He put the same number of marbles in each bag.

**Question:** \_\_\_\_\_

**Solution:** \_\_\_\_\_

18. Geoff planted 4 pots of seeds. He planted 6 seeds in each pot.

**Question:** \_\_\_\_\_

**Solution:** \_\_\_\_\_

19. Marly put 10 books on each of 5 shelves in the library.

**Question:** \_\_\_\_\_

**Solution:** \_\_\_\_\_

► Write the Problem

Write a problem that can be solved using the given equation. Then solve.

20.  $9 \times 6 = \square$

Solution: \_\_\_\_\_

---

---

---

21.  $324 - 176 = \square$

Solution: \_\_\_\_\_

---

---

---

22.  $56 \div 7 = \square$

Solution: \_\_\_\_\_

---

---

---

23.  $459 + 535 = \square$

Solution: \_\_\_\_\_

---

---

---

24. **Math Journal** Choose an operation. Write a word problem that involves that operation. Write an equation to solve your word problem.

**CA CC** Content Standards 3.OA.1, 3.OA.2, 3.OA.3, 3.OA.4, 3.OA.6, 3.OA.7, 3.OA.8 Mathematical Practices MP.1, MP.3, MP.6, MP.8

## ► Use Order of Operations

This exercise involves subtraction and multiplication:

$$10 - 3 \times 2$$

1. What do you get if you subtract first and then multiply? \_\_\_\_\_
2. What do you get if you multiply first and then subtract? \_\_\_\_\_

To make sure everyone has the same answer to problems like this one, people have decided that multiplication and division will be done *before* addition and subtraction. The answer you found in question 2 is correct.

If you want to tell people to add or subtract first, you must use parentheses. Parentheses mean "Do this first." For example, if you want people to subtract first in the exercise above, write it like this:

$$(10 - 3) \times 2$$

### Find the answer.

3.  $5 + 4 \times 2 =$  \_\_\_\_\_

4.  $(9 - 3) \times 6 =$  \_\_\_\_\_

5.  $8 \div 2 + 2 =$  \_\_\_\_\_

6.  $6 \times (8 - 1) =$  \_\_\_\_\_

### Rewrite each statement, using symbols and numbers instead of words.

7. Add 4 and 3, and multiply the total by 8. \_\_\_\_\_

8. Multiply 3 by 8, and add 4 to the total. \_\_\_\_\_



## ► What's the Error?

Dear Math Students,

Today I found the answer to  $6 + 3 \times 2$ .  
Here is how I found the answer.

$$6 + 3 \times 2$$



$$9 \times 2 = 18$$

Is my answer correct? If not, please  
correct my work and tell me what I did  
wrong.

Your friend,  
Puzzled Penguin



9. Write an answer to the Puzzled Penguin.

---



---



---

Find the answer.

10.  $4 + 3 \times 5 =$  \_\_\_\_\_

11.  $10 \div 2 + 3 =$  \_\_\_\_\_

12.  $12 - 9 \div 3 =$  \_\_\_\_\_

13.  $3 \times 5 - 2 =$  \_\_\_\_\_

14.  $(4 + 3) \times 5 =$  \_\_\_\_\_

15.  $10 \div (2 + 3) =$  \_\_\_\_\_

16.  $(12 - 9) \div 3 =$  \_\_\_\_\_

17.  $3 \times (5 - 2) =$  \_\_\_\_\_

► Write First Step Questions

Write the first step question and answer.  
Then solve the problem.

*Show your work.*

18. A roller coaster has 7 cars. Each car has 4 seats. If there were 3 empty seats, how many people were on the roller coaster?

\_\_\_\_\_  
\_\_\_\_\_

19. Each week, Marta earns \$10 babysitting. She always spends \$3 and saves the rest. How much does she save in 8 weeks?

\_\_\_\_\_  
\_\_\_\_\_

20. Abu bought 6 packs of stickers. Each pack had 8 stickers. Then Abu's friend gave him 10 more stickers. How many stickers does Abu have now?

\_\_\_\_\_  
\_\_\_\_\_

21. Zoe made some snacks. She put 4 apple slices and 2 melon slices on each plate. She prepared 5 plates. How many slices of fruit did Zoe use in all?

\_\_\_\_\_  
\_\_\_\_\_

22. Kyle ordered 8 pizzas for his party. Each pizza was cut into 8 slices. 48 of the slices were plain cheese, and the rest had mushrooms. How many slices of pizza had mushrooms?

\_\_\_\_\_  
\_\_\_\_\_

► Write First Step Questions (continued)

Write the first step question and answer.  
Then solve the problem.

*Show your work.*

23. Nadia counted 77 birds on the pond. 53 were ducks, and the rest were geese. Then the geese flew away in 4 equal flocks. How many geese were in each flock?

---

---

24. Kagami baked 86 blueberry muffins. Her sisters ate 5 of them. Kagami divided the remaining muffins equally among 9 plates. How many muffins did she put on each plate?

---

---

25. Lucia had 42 plums. Jorge had 12 more plums than Lucia. Jorge divided his plums equally among 6 people. How many plums did each person get?

---

---

26. On his way to school, Kevin counted 5 mountain bikes and 3 road bikes. How many wheels were on the bikes altogether?

---

---

27. Juana has 21 shirts. Leslie had 7 less shirts than Juana, but then she bought 4 more. How many shirts does Leslie have now?

---

---

## ► Make Sense of Two Step Word Problems

Write an equation and solve the problem.

*Show your work.*

1. Nine hens laid 6 eggs each. Five of the eggs broke. How many eggs are left?  
\_\_\_\_\_
2. There are 8 houses on Jeremiah's street. Each house has 1 willow tree, 6 apple trees, and 2 olive trees. How many trees are on Jeremiah's street in all?  
\_\_\_\_\_
3. Tim has 9 marbles. Ryan has 3 fewer marbles than Tim. Leslie has 5 more marbles than Ryan. How many marbles does Leslie have?  
\_\_\_\_\_
4. Mr. Helms has 2 stables with 4 horses in each stable. Ms. Martinez has 4 more horses than Mr. Helms. How many horses does Ms. Martinez have?  
\_\_\_\_\_
5. Angela had \$4. She bought 2 pumpkins for \$1 each. How much money does Angela have now?  
\_\_\_\_\_
6. Ahmad had \$40. He bought an action figure for \$5 and a backpack for \$14. How much money does Ahmad have left?  
\_\_\_\_\_

## ► More Make Sense of Two Step Problems

Write an equation and solve the problem.

*Show your work.*

7. In the locker room, there are 8 rows of 9 lockers. All of the lockers were full in the morning, but in the afternoon 6 were empty. How many lockers were full in the afternoon?

\_\_\_\_\_

8. Anita received 3 postcards of zebras and 2 postcards of monkeys each month for 3 months. How many postcards is that?

\_\_\_\_\_

9. The library has 2 books about the desert and 8 books about the rainforest. The books were divided into groups of 2. How many groups are there?

\_\_\_\_\_

10. Each pack of pencils contains 8 pencils. Sahil bought 3 packs and divided them equally among 6 people. How many pencils did each person get?

\_\_\_\_\_

11. James bought four 8-ounce bottles of water for a hiking trip. He drank 28 ounces. How many ounces of water are left?

\_\_\_\_\_

12. Kaya has 20 photos of dogs and 30 photos of cats. She displayed an equal number of them on 10 posters for a fund raiser for an animal shelter. How many photos were on each poster?

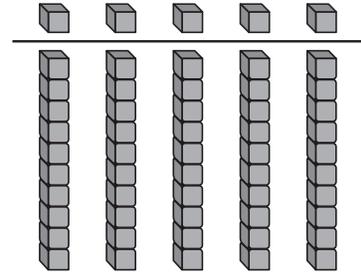
\_\_\_\_\_

## ► Multiply with Multiples of 10

When a number of ones is multiplied by 10, the ones become tens.

$$1 \text{ ten} \times 5 \text{ ones} = 5 \text{ tens}$$

$$10 \times 5 = \underline{\quad}$$



To multiply with multiples of 10, use place value and properties.

$$2 \times 3 = (2 \times 1) \times (3 \times 1) = (2 \times 3) \times (1 \times 1) = 6 \times 1 = 6$$

$$2 \times 30 = (2 \times 1) \times (3 \times 10) = (2 \times 3) \times (1 \times 10) = 6 \times 10 = 60$$

**Use a shortcut.**

Find the basic multiplication product. Then multiply by 10.

$$\begin{array}{l} 2 \times 30 \\ \swarrow \quad \searrow \\ 6 \times 10 = 60 \end{array}$$

**Multiply.**

$$\begin{array}{l} 1. \ 6 \times 40 \\ \swarrow \quad \searrow \\ \quad \times 10 = \underline{\quad} \end{array}$$

$$\begin{array}{l} 2. \ 4 \times 50 \\ \swarrow \quad \searrow \\ \quad \times 10 = \underline{\quad} \end{array}$$

$$\begin{array}{l} 3. \ 70 \times 8 \\ \swarrow \quad \searrow \\ \quad \times 10 = \underline{\quad} \end{array}$$

$$\begin{array}{l} 4. \ 90 \times 3 \\ \swarrow \quad \searrow \\ \quad \times 10 = \underline{\quad} \end{array}$$



## ► Multiply Using Mental Math

Use a basic multiplication and mental math to complete.

5.  $3 \times 4 =$  \_\_\_\_\_  
 $3 \times 40 =$  \_\_\_\_\_

6.  $1 \times 2 =$  \_\_\_\_\_  
 $10 \times 2 =$  \_\_\_\_\_

7.  $9 \times 8 =$  \_\_\_\_\_  
 $9 \times 80 =$  \_\_\_\_\_

8.  $2 \times 9 =$  \_\_\_\_\_  
 $2 \times 90 =$  \_\_\_\_\_

9.  $5 \times 5 =$  \_\_\_\_\_  
 $5 \times 50 =$  \_\_\_\_\_

10.  $3 \times 5 =$  \_\_\_\_\_  
 $3 \times 50 =$  \_\_\_\_\_

11.  $1 \times 1 =$  \_\_\_\_\_  
 $10 \times 1 =$  \_\_\_\_\_

12.  $2 \times 3 =$  \_\_\_\_\_  
 $20 \times 3 =$  \_\_\_\_\_

13.  $5 \times 6 =$  \_\_\_\_\_  
 $5 \times 60 =$  \_\_\_\_\_

14.  $2 \times 4 =$  \_\_\_\_\_  
 $2 \times 40 =$  \_\_\_\_\_

15.  $6 \times 3 =$  \_\_\_\_\_  
 $6 \times 30 =$  \_\_\_\_\_

16.  $9 \times 2 =$  \_\_\_\_\_  
 $9 \times 20 =$  \_\_\_\_\_

17.  $2 \times 30 =$  \_\_\_\_\_

18.  $5 \times 40 =$  \_\_\_\_\_

19.  $9 \times 60 =$  \_\_\_\_\_

20.  $3 \times 80 =$  \_\_\_\_\_

21.  $2 \times 70 =$  \_\_\_\_\_

22.  $5 \times 90 =$  \_\_\_\_\_

23.  $9 \times 50 =$  \_\_\_\_\_

24.  $5 \times 20 =$  \_\_\_\_\_

25.  $3 \times 30 =$  \_\_\_\_\_

26.  $5 \times 80 =$  \_\_\_\_\_

27.  $9 \times 90 =$  \_\_\_\_\_

28.  $5 \times 60 =$  \_\_\_\_\_

29.  $70 \times 5 =$  \_\_\_\_\_

30.  $8 \times 50 =$  \_\_\_\_\_

31.  $60 \times 4 =$  \_\_\_\_\_

32. Describe how to multiply a one-digit number and a multiple of 10. \_\_\_\_\_

\_\_\_\_\_


**Dashes 21–22, 19A–20A**

Complete each Dash. Check your answers on page 147.

<b>Dash 21</b> <b>2s, 3s, 4s, 5s, 9s</b> <b>Multiplications</b>	<b>Dash 22</b> <b>2s, 3s, 4s, 5s, 9s</b> <b>Divisions</b>	<b>Dash 19A</b> <b>6s, 7s, 8s</b> <b>Multiplications</b>	<b>Dash 20A</b> <b>6s, 7s, 8s</b> <b>Divisions</b>
a. $6 \times 3 = \underline{\quad}$	a. $16 \div 4 = \underline{\quad}$	a. $9 \times 6 = \underline{\quad}$	a. $24 \div 6 = \underline{\quad}$
b. $4 \cdot 7 = \underline{\quad}$	b. $54 \div 9 = \underline{\quad}$	b. $7 * 7 = \underline{\quad}$	b. $21 \div 7 = \underline{\quad}$
c. $8 * 2 = \underline{\quad}$	c. $4 \div 2 = \underline{\quad}$	c. $3 \cdot 7 = \underline{\quad}$	c. $42 \div 7 = \underline{\quad}$
d. $5 \times 3 = \underline{\quad}$	d. $28 \div 4 = \underline{\quad}$	d. $6 \times 3 = \underline{\quad}$	d. $16 \div 8 = \underline{\quad}$
e. $4 \cdot 4 = \underline{\quad}$	e. $25 \div 5 = \underline{\quad}$	e. $7 * 8 = \underline{\quad}$	e. $24 \div 8 = \underline{\quad}$
f. $3 \cdot 9 = \underline{\quad}$	f. $21 \div 3 = \underline{\quad}$	f. $8 \cdot 6 = \underline{\quad}$	f. $54 \div 6 = \underline{\quad}$
g. $9 \times 9 = \underline{\quad}$	g. $40 \div 4 = \underline{\quad}$	g. $5 \times 6 = \underline{\quad}$	g. $36 \div 6 = \underline{\quad}$
h. $8 \cdot 9 = \underline{\quad}$	h. $81 \div 9 = \underline{\quad}$	h. $6 * 6 = \underline{\quad}$	h. $48 \div 8 = \underline{\quad}$
i. $6 * 4 = \underline{\quad}$	i. $35 \div 5 = \underline{\quad}$	i. $9 \cdot 8 = \underline{\quad}$	i. $49 \div 7 = \underline{\quad}$
j. $3 \times 3 = \underline{\quad}$	j. $12 \div 3 = \underline{\quad}$	j. $7 \times 6 = \underline{\quad}$	j. $64 \div 8 = \underline{\quad}$
k. $2 \cdot 7 = \underline{\quad}$	k. $2 \div 2 = \underline{\quad}$	k. $2 * 7 = \underline{\quad}$	k. $48 \div 6 = \underline{\quad}$
l. $8 \cdot 5 = \underline{\quad}$	l. $63 \div 9 = \underline{\quad}$	l. $4 \cdot 7 = \underline{\quad}$	l. $42 \div 6 = \underline{\quad}$
m. $4 \times 9 = \underline{\quad}$	m. $36 \div 4 = \underline{\quad}$	m. $3 \times 6 = \underline{\quad}$	m. $32 \div 8 = \underline{\quad}$
n. $9 \cdot 5 = \underline{\quad}$	n. $18 \div 2 = \underline{\quad}$	n. $9 * 7 = \underline{\quad}$	n. $56 \div 7 = \underline{\quad}$
o. $7 * 3 = \underline{\quad}$	o. $9 \div 3 = \underline{\quad}$	o. $6 \cdot 7 = \underline{\quad}$	o. $63 \div 7 = \underline{\quad}$
p. $2 \times 2 = \underline{\quad}$	p. $36 \div 9 = \underline{\quad}$	p. $6 \times 9 = \underline{\quad}$	p. $72 \div 8 = \underline{\quad}$
q. $8 \cdot 4 = \underline{\quad}$	q. $40 \div 5 = \underline{\quad}$	q. $8 * 7 = \underline{\quad}$	q. $30 \div 6 = \underline{\quad}$
r. $5 * 1 = \underline{\quad}$	r. $12 \div 4 = \underline{\quad}$	r. $6 \cdot 4 = \underline{\quad}$	r. $18 \div 6 = \underline{\quad}$
s. $5 \times 5 = \underline{\quad}$	s. $9 \div 9 = \underline{\quad}$	s. $7 \times 3 = \underline{\quad}$	s. $56 \div 8 = \underline{\quad}$
t. $6 \cdot 9 = \underline{\quad}$	t. $14 \div 2 = \underline{\quad}$	t. $8 * 8 = \underline{\quad}$	t. $28 \div 7 = \underline{\quad}$


**Dashes 21A–22A, 19B–20B**

Complete each Dash. Check your answers on page 147.

Dash 21A 2s, 3s, 4s, 5s, 9s Multiplications	Dash 22A 2s, 3s, 4s, 5s, 9s Divisions	Dash 19B 6s, 7s, 8s Multiplications	Dash 20B 6s, 7s, 8s Divisions
a. $6 \times 9 = \underline{\quad}$	a. $14 \div 2 = \underline{\quad}$	a. $6 \times 2 = \underline{\quad}$	a. $36 \div 6 = \underline{\quad}$
b. $6 * 3 = \underline{\quad}$	b. $16 / 4 = \underline{\quad}$	b. $7 * 7 = \underline{\quad}$	b. $63 / 7 = \underline{\quad}$
c. $4 \bullet 7 = \underline{\quad}$	c. $9 \div 9 = \underline{\quad}$	c. $8 \bullet 5 = \underline{\quad}$	c. $24 \div 8 = \underline{\quad}$
d. $5 \times 5 = \underline{\quad}$	d. $54 / 9 = \underline{\quad}$	d. $4 \times 6 = \underline{\quad}$	d. $18 / 6 = \underline{\quad}$
e. $8 * 2 = \underline{\quad}$	e. $12 \div 4 = \underline{\quad}$	e. $3 * 7 = \underline{\quad}$	e. $28 \div 7 = \underline{\quad}$
f. $5 \bullet 1 = \underline{\quad}$	f. $4 / 2 = \underline{\quad}$	f. $1 \bullet 8 = \underline{\quad}$	f. $48 / 8 = \underline{\quad}$
g. $5 \times 3 = \underline{\quad}$	g. $40 \div 5 = \underline{\quad}$	g. $6 \times 9 = \underline{\quad}$	g. $54 \div 6 = \underline{\quad}$
h. $8 * 4 = \underline{\quad}$	h. $28 / 4 = \underline{\quad}$	h. $7 * 5 = \underline{\quad}$	h. $42 / 7 = \underline{\quad}$
i. $4 \bullet 4 = \underline{\quad}$	i. $36 \div 9 = \underline{\quad}$	i. $8 \bullet 3 = \underline{\quad}$	i. $72 \div 8 = \underline{\quad}$
j. $2 \times 2 = \underline{\quad}$	j. $25 / 5 = \underline{\quad}$	j. $4 \times 6 = \underline{\quad}$	j. $6 / 6 = \underline{\quad}$
k. $3 * 9 = \underline{\quad}$	k. $9 \div 3 = \underline{\quad}$	k. $9 * 7 = \underline{\quad}$	k. $14 \div 7 = \underline{\quad}$
l. $7 \bullet 3 = \underline{\quad}$	l. $21 / 3 = \underline{\quad}$	l. $8 \bullet 8 = \underline{\quad}$	l. $56 / 8 = \underline{\quad}$
m. $9 \times 9 = \underline{\quad}$	m. $18 \div 2 = \underline{\quad}$	m. $6 \times 1 = \underline{\quad}$	m. $12 \div 6 = \underline{\quad}$
n. $9 * 5 = \underline{\quad}$	n. $40 / 4 = \underline{\quad}$	n. $7 * 4 = \underline{\quad}$	n. $7 / 7 = \underline{\quad}$
o. $8 \bullet 9 = \underline{\quad}$	o. $36 \div 4 = \underline{\quad}$	o. $8 \bullet 6 = \underline{\quad}$	o. $16 \div 8 = \underline{\quad}$
p. $4 \times 9 = \underline{\quad}$	p. $81 / 9 = \underline{\quad}$	p. $7 \times 6 = \underline{\quad}$	p. $30 / 6 = \underline{\quad}$
q. $6 * 4 = \underline{\quad}$	q. $63 \div 9 = \underline{\quad}$	q. $2 * 7 = \underline{\quad}$	q. $56 \div 7 = \underline{\quad}$
r. $8 \bullet 5 = \underline{\quad}$	r. $35 / 5 = \underline{\quad}$	r. $9 \bullet 8 = \underline{\quad}$	r. $8 / 8 = \underline{\quad}$
s. $2 \times 7 = \underline{\quad}$	s. $12 \div 3 = \underline{\quad}$	s. $6 \times 5 = \underline{\quad}$	s. $48 \div 6 = \underline{\quad}$
t. $3 * 3 = \underline{\quad}$	t. $2 / 2 = \underline{\quad}$	t. $7 * 6 = \underline{\quad}$	t. $21 / 7 = \underline{\quad}$


**Dashes 21B–22B, 19C–20C**

Complete each Dash. Check your answers on page 148.

<b>Dash 21B</b> 2s, 3s, 4s, 5s, 9s Multiplications	<b>Dash 22B</b> 2s, 3s, 4s, 5s, 9s Divisions	<b>Dash 19C</b> 6s, 7s, 8s Multiplications	<b>Dash 20C</b> 6s, 7s, 8s Divisions
a. $2 \times 3 =$ _____	a. $8 \div 2 =$ _____	a. $6 \times 8 =$ _____	a. $54 \div 6 =$ _____
b. $3 * 8 =$ _____	b. $18 / 3 =$ _____	b. $7 * 3 =$ _____	b. $49 / 7 =$ _____
c. $4 \bullet 4 =$ _____	c. $12 \div 4 =$ _____	c. $8 \bullet 6 =$ _____	c. $24 \div 8 =$ _____
d. $5 \times 6 =$ _____	d. $25 / 5 =$ _____	d. $2 \times 6 =$ _____	d. $6 / 6 =$ _____
e. $9 * 8 =$ _____	e. $63 \div 9 =$ _____	e. $8 * 7 =$ _____	e. $35 \div 7 =$ _____
f. $9 \bullet 2 =$ _____	f. $16 / 2 =$ _____	f. $9 \bullet 8 =$ _____	f. $72 / 8 =$ _____
g. $3 \times 3 =$ _____	g. $3 \div 3 =$ _____	g. $6 \times 4 =$ _____	g. $18 \div 6 =$ _____
h. $4 * 2 =$ _____	h. $28 / 4 =$ _____	h. $7 * 1 =$ _____	h. $28 / 7 =$ _____
i. $9 \bullet 5 =$ _____	i. $45 \div 5 =$ _____	i. $8 \bullet 3 =$ _____	i. $8 \div 8 =$ _____
j. $9 \times 4 =$ _____	j. $27 / 9 =$ _____	j. $5 \times 6 =$ _____	j. $30 / 6 =$ _____
k. $2 * 7 =$ _____	k. $12 \div 2 =$ _____	k. $9 * 7 =$ _____	k. $21 \div 7 =$ _____
l. $3 \bullet 5 =$ _____	l. $12 / 3 =$ _____	l. $4 \bullet 8 =$ _____	l. $40 / 8 =$ _____
m. $4 \times 8 =$ _____	m. $20 \div 4 =$ _____	m. $6 \times 6 =$ _____	m. $42 \div 6 =$ _____
n. $5 * 3 =$ _____	n. $40 / 5 =$ _____	n. $7 * 5 =$ _____	n. $63 / 7 =$ _____
o. $9 \bullet 6 =$ _____	o. $54 \div 9 =$ _____	o. $8 \bullet 8 =$ _____	o. $32 \div 8 =$ _____
p. $2 \times 8 =$ _____	p. $2 / 2 =$ _____	p. $1 \times 6 =$ _____	p. $36 / 6 =$ _____
q. $3 * 7 =$ _____	q. $9 \div 3 =$ _____	q. $2 * 7 =$ _____	q. $14 \div 7 =$ _____
r. $4 \bullet 1 =$ _____	r. $36 / 4 =$ _____	r. $5 \bullet 8 =$ _____	r. $56 / 8 =$ _____
s. $5 \times 8 =$ _____	s. $15 \div 5 =$ _____	s. $6 \times 9 =$ _____	s. $24 \div 6 =$ _____
t. $9 * 9 =$ _____	t. $9 / 9 =$ _____	t. $7 * 7 =$ _____	t. $42 / 7 =$ _____


**Dashes 21C–22C, 19D–20D**

Complete each Dash. Check your answers on page 148.

<b>Dash 21C</b> <b>2s, 3s, 4s, 5s, 9s</b> <b>Multiplications</b>	<b>Dash 22C</b> <b>2s, 3s, 4s, 5s, 9s</b> <b>Divisions</b>	<b>Dash 19D</b> <b>6s, 7s, 8s</b> <b>Multiplications</b>	<b>Dash 20D</b> <b>6s, 7s, 8s</b> <b>Divisions</b>
a. $2 \times 9 = \underline{\quad}$	a. $8 \div 2 = \underline{\quad}$	a. $6 \times 9 = \underline{\quad}$	a. $18 \div 6 = \underline{\quad}$
b. $3 * 7 = \underline{\quad}$	b. $6 \div 3 = \underline{\quad}$	b. $7 * 6 = \underline{\quad}$	b. $42 \div 7 = \underline{\quad}$
c. $4 \bullet 5 = \underline{\quad}$	c. $4 \div 4 = \underline{\quad}$	c. $8 \bullet 2 = \underline{\quad}$	c. $32 \div 8 = \underline{\quad}$
d. $5 \times 3 = \underline{\quad}$	d. $20 \div 5 = \underline{\quad}$	d. $3 \times 6 = \underline{\quad}$	d. $54 \div 6 = \underline{\quad}$
e. $9 * 1 = \underline{\quad}$	e. $63 \div 9 = \underline{\quad}$	e. $4 * 7 = \underline{\quad}$	e. $49 \div 7 = \underline{\quad}$
f. $1 \bullet 2 = \underline{\quad}$	f. $16 \div 2 = \underline{\quad}$	f. $9 \bullet 8 = \underline{\quad}$	f. $8 \div 8 = \underline{\quad}$
g. $4 \times 3 = \underline{\quad}$	g. $15 \div 3 = \underline{\quad}$	g. $6 \times 6 = \underline{\quad}$	g. $30 \div 6 = \underline{\quad}$
h. $4 * 1 = \underline{\quad}$	h. $32 \div 4 = \underline{\quad}$	h. $7 * 2 = \underline{\quad}$	h. $35 \div 7 = \underline{\quad}$
i. $7 \bullet 5 = \underline{\quad}$	i. $30 \div 5 = \underline{\quad}$	i. $8 \bullet 1 = \underline{\quad}$	i. $48 \div 8 = \underline{\quad}$
j. $9 \times 9 = \underline{\quad}$	j. $45 \div 9 = \underline{\quad}$	j. $2 \times 6 = \underline{\quad}$	j. $24 \div 6 = \underline{\quad}$
k. $2 * 3 = \underline{\quad}$	k. $2 \div 2 = \underline{\quad}$	k. $8 * 7 = \underline{\quad}$	k. $14 \div 7 = \underline{\quad}$
l. $3 \bullet 8 = \underline{\quad}$	l. $21 \div 3 = \underline{\quad}$	l. $3 \bullet 8 = \underline{\quad}$	l. $56 \div 8 = \underline{\quad}$
m. $4 \times 4 = \underline{\quad}$	m. $12 \div 4 = \underline{\quad}$	m. $6 \times 4 = \underline{\quad}$	m. $6 \div 6 = \underline{\quad}$
n. $5 * 2 = \underline{\quad}$	n. $10 \div 5 = \underline{\quad}$	n. $7 * 5 = \underline{\quad}$	n. $21 \div 7 = \underline{\quad}$
o. $9 \bullet 6 = \underline{\quad}$	o. $9 \div 9 = \underline{\quad}$	o. $8 \bullet 8 = \underline{\quad}$	o. $40 \div 8 = \underline{\quad}$
p. $6 \times 2 = \underline{\quad}$	p. $12 \div 2 = \underline{\quad}$	p. $1 \times 6 = \underline{\quad}$	p. $48 \div 6 = \underline{\quad}$
q. $9 * 3 = \underline{\quad}$	q. $27 \div 3 = \underline{\quad}$	q. $3 * 7 = \underline{\quad}$	q. $56 \div 7 = \underline{\quad}$
r. $6 \bullet 4 = \underline{\quad}$	r. $20 \div 4 = \underline{\quad}$	r. $4 \bullet 8 = \underline{\quad}$	r. $64 \div 8 = \underline{\quad}$
s. $5 \times 5 = \underline{\quad}$	s. $40 \div 8 = \underline{\quad}$	s. $6 \times 7 = \underline{\quad}$	s. $36 \div 6 = \underline{\quad}$
t. $3 * 9 = \underline{\quad}$	t. $81 \div 9 = \underline{\quad}$	t. $7 * 7 = \underline{\quad}$	t. $7 \div 7 = \underline{\quad}$

## ► Answers to Dashes 21–22, 19A–20B, 21A–22A

Use this sheet to check your answers to the Dashes on pages 143 and 144.

Dash 21 ×	Dash 22 ÷	Dash 19A ×	Dash 20A ÷	Dash 21A ×	Dash 22A ÷	Dash 19B ×	Dash 20B ÷
a. 18	a. 4	a. 54	a. 4	a. 54	a. 7	a. 12	a. 6
b. 28	b. 6	b. 49	b. 3	b. 18	b. 4	b. 49	b. 9
c. 16	c. 2	c. 21	c. 6	c. 28	c. 1	c. 40	c. 3
d. 15	d. 7	d. 18	d. 2	d. 25	d. 6	d. 24	d. 3
e. 16	e. 5	e. 56	e. 3	e. 16	e. 3	e. 21	e. 4
f. 27	f. 7	f. 48	f. 9	f. 5	f. 2	f. 8	f. 6
g. 81	g. 10	g. 30	g. 6	g. 15	g. 8	g. 54	g. 9
h. 72	h. 9	h. 36	h. 6	h. 32	h. 7	h. 35	h. 6
i. 24	i. 7	i. 72	i. 7	i. 16	i. 4	i. 24	i. 9
j. 9	j. 4	j. 42	j. 8	j. 4	j. 5	j. 24	j. 1
k. 14	k. 1	k. 14	k. 8	k. 27	k. 3	k. 63	k. 2
l. 40	l. 7	l. 28	l. 7	l. 21	l. 7	l. 64	l. 7
m. 36	m. 9	m. 18	m. 4	m. 81	m. 9	m. 6	m. 2
n. 45	n. 9	n. 63	n. 8	n. 45	n. 10	n. 28	n. 1
o. 21	o. 3	o. 42	o. 9	o. 72	o. 9	o. 48	o. 2
p. 4	p. 4	p. 54	p. 9	p. 36	p. 9	p. 42	p. 5
q. 32	q. 8	q. 56	q. 5	q. 24	q. 7	q. 14	q. 8
r. 5	r. 3	r. 24	r. 3	r. 40	r. 7	r. 72	r. 1
s. 25	s. 1	s. 21	s. 7	s. 14	s. 4	s. 30	s. 8
t. 54	t. 7	t. 64	t. 4	t. 9	t. 1	t. 42	t. 3

## ► Answers to Dashes 21B–22B, 19C–22C, 19D, 20D

Use this sheet to check your answers to the Dashes on pages 145 and 146.

Dash 21B ×	Dash 22B ÷	Dash 19C ×	Dash 20C ÷	Dash 21C ×	Dash 22C ÷	Dash 19D ×	Dash 20D ÷
a. 6	a. 4	a. 48	a. 9	a. 18	a. 4	a. 54	a. 3
b. 24	b. 6	b. 21	b. 7	b. 21	b. 2	b. 42	b. 6
c. 16	c. 3	c. 48	c. 3	c. 20	c. 1	c. 16	c. 4
d. 30	d. 5	d. 12	d. 1	d. 15	d. 4	d. 18	d. 9
e. 72	e. 7	e. 56	e. 5	e. 9	e. 7	e. 28	e. 7
f. 18	f. 8	f. 72	f. 9	f. 2	f. 8	f. 72	f. 1
g. 9	g. 1	g. 24	g. 3	g. 12	g. 5	g. 36	g. 5
h. 8	h. 7	h. 7	h. 4	h. 4	h. 8	h. 14	h. 5
i. 45	i. 9	i. 24	i. 1	i. 35	i. 6	i. 8	i. 6
j. 36	j. 3	j. 30	j. 5	j. 81	j. 5	j. 12	j. 4
k. 14	k. 6	k. 63	k. 3	k. 6	k. 1	k. 56	k. 2
l. 15	l. 4	l. 32	l. 5	l. 24	l. 7	l. 24	l. 7
m. 32	m. 5	m. 36	m. 7	m. 16	m. 3	m. 24	m. 1
n. 15	n. 8	n. 35	n. 9	n. 10	n. 2	n. 35	n. 3
o. 54	o. 6	o. 64	o. 4	o. 54	o. 1	o. 64	o. 5
p. 16	p. 1	p. 6	p. 6	p. 12	p. 6	p. 6	p. 8
q. 21	q. 3	q. 14	q. 2	q. 27	q. 9	q. 21	q. 8
r. 4	r. 9	r. 40	r. 7	r. 24	r. 5	r. 32	r. 8
s. 40	s. 3	s. 54	s. 4	s. 25	s. 5	s. 42	s. 6
t. 81	t. 1	t. 49	t. 6	t. 27	t. 9	t. 49	t. 1

## ► Solve Two Step Word Problems

Write an equation and solve the problem.

*Show your work.*

1. Raul spent 10 minutes doing homework for each of 5 subjects and 15 minutes for another subject. How many minutes did Raul spend on his homework?

\_\_\_\_\_

2. At Sonya's cello recital, there were 8 rows of chairs, with 6 chairs in each row. There was a person in each chair, and there were 17 more people standing. How many people were in the audience altogether?

\_\_\_\_\_

3. Jana played a game with a deck of cards. She placed the cards on the floor in 3 rows of 10. If the deck has 52 cards, how many cards did Jana leave out?

\_\_\_\_\_

4. Mukesh was making 7 salads. He opened a can of olives and put 6 olives on each salad. Then he ate the rest of the olives in the can. If there were 51 olives to start with, how many olives did Mukesh eat?

\_\_\_\_\_

5. Peter wallpapered a wall that was 8 feet wide and 9 feet high. He had 28 square feet of wallpaper left over. How many square feet of wallpaper did he start with?

\_\_\_\_\_


**VOCABULARY**  
 function table

 ▶ **PATH to FLUENCY** What's My Rule?

A **function table** is a table of ordered pairs. For every input number, there is only one output number. The rule describes what to do to the input number to get the output number.

Write the rule and then complete the function table.

6. **Rule:** \_\_\_\_\_

Input	Output
7	42
8	_____
_____	54
6	36

7. **Rule:** \_\_\_\_\_

Input	Output
81	9
45	5
72	_____
_____	7

8. **Rule:** \_\_\_\_\_

Input	Output
4	28
8	56
6	_____
7	_____

9. **Rule:** \_\_\_\_\_

Input	Output
32	8
8	2
_____	3
24	_____

10. **Rule:** \_\_\_\_\_

Input	Output
21	7
27	9
_____	6
15	_____

11. **Rule:** \_\_\_\_\_

Input	Output
5	25
_____	40
9	_____
3	15

 **Play *Division Three-in-a-Row*****Rules for *Division Three-in-a-Row***

*Number of players:* 2

*What You Will Need:* Division Product Cards, one *Three-in-a-Row* Game Grid for each player

1. Each player writes any nine quotients in the squares of a game grid. A player may write the same quotient more than once.
2. Shuffle the cards. Place them division side up in a stack in the center of the table.
3. Players take turns. On each turn, a player completes the division on the top card and then partners check the answer.
4. For a correct answer, if the quotient is on the game grid, the player puts an X through that grid square. If the answer is wrong, or if the quotient is not on the grid, the player doesn't mark anything. The player puts the card division side up on the bottom of the stack.
5. The first player to mark three squares in a row (horizontally, vertically, or diagonally) wins.







$2 \times 2$

$2 \bullet 3$

$2 * 4$

$2 \times 5$

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $3 \cdot 2$ ?

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $4 * 2$ ?

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $5 \times 2$ ?

© Houghton Mifflin Harcourt Publishing Company

$2 \times 6$

$2 \bullet 7$

$2 * 8$

$2 \times 9$

Hint:  
What is  $6 \times 2$ ?

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $7 \cdot 2$ ?

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $8 * 2$ ?

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $9 \times 2$ ?

© Houghton Mifflin Harcourt Publishing Company

$5 \times 2$

$5 \bullet 3$

$5 * 4$

$5 \times 5$

Hint:  
What is  $2 \times 5$ ?

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $3 \cdot 5$ ?

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $4 * 5$ ?

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $5 \times 5$ ?

© Houghton Mifflin Harcourt Publishing Company

$5 \times 6$

$5 \bullet 7$

$5 * 8$

$5 \times 9$

Hint:  
What is  $6 \times 5$ ?

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $7 \cdot 5$ ?

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $8 * 5$ ?

© Houghton Mifflin Harcourt Publishing Company

Hint:  
What is  $9 \times 5$ ?

© Houghton Mifflin Harcourt Publishing Company

© Houghton Mifflin Harcourt Publishing Company

$$2 \overline{)10}$$

Hint: What is  
 $\square \times 2 = 10?$

© Houghton Mifflin Harcourt Publishing Company

$$2 \overline{)8}$$

Hint: What is  
 $\square \times 2 = 8?$

© Houghton Mifflin Harcourt Publishing Company

$$2 \overline{)6}$$

Hint: What is  
 $\square \times 2 = 6?$

© Houghton Mifflin Harcourt Publishing Company

$$2 \overline{)4}$$

Hint: What is  
 $\square \times 2 = 4?$

© Houghton Mifflin Harcourt Publishing Company

$$2 \overline{)18}$$

Hint: What is  
 $\square \times 2 = 18?$

© Houghton Mifflin Harcourt Publishing Company

$$2 \overline{)16}$$

Hint: What is  
 $\square \times 2 = 16?$

© Houghton Mifflin Harcourt Publishing Company

$$2 \overline{)14}$$

Hint: What is  
 $\square \times 2 = 14?$

© Houghton Mifflin Harcourt Publishing Company

$$2 \overline{)12}$$

Hint: What is  
 $\square \times 2 = 12?$

© Houghton Mifflin Harcourt Publishing Company

$$5 \overline{)25}$$

Hint: What is  
 $\square \times 5 = 25?$

© Houghton Mifflin Harcourt Publishing Company

$$5 \overline{)20}$$

Hint: What is  
 $\square \times 5 = 20?$

© Houghton Mifflin Harcourt Publishing Company

$$5 \overline{)15}$$

Hint: What is  
 $\square \times 5 = 15?$

© Houghton Mifflin Harcourt Publishing Company

$$5 \overline{)10}$$

Hint: What is  
 $\square \times 5 = 10?$

© Houghton Mifflin Harcourt Publishing Company

$$5 \overline{)45}$$

Hint: What is  
 $\square \times 5 = 45?$

© Houghton Mifflin Harcourt Publishing Company

$$5 \overline{)40}$$

Hint: What is  
 $\square \times 5 = 40?$

© Houghton Mifflin Harcourt Publishing Company

$$5 \overline{)35}$$

Hint: What is  
 $\square \times 5 = 35?$

© Houghton Mifflin Harcourt Publishing Company

$$5 \overline{)30}$$

Hint: What is  
 $\square \times 5 = 30?$

© Houghton Mifflin Harcourt Publishing Company

© Houghton Mifflin Harcourt Publishing Company

$9 \times 2$

Hint:  
What is  $2 \times 9$ ?

© Houghton Mifflin Harcourt Publishing Company

$9 \bullet 3$

Hint:  
What is  $3 \cdot 9$ ?

© Houghton Mifflin Harcourt Publishing Company

$9 * 4$

Hint:  
What is  $4 * 9$ ?

© Houghton Mifflin Harcourt Publishing Company

$9 \times 5$

Hint:  
What is  $5 \times 9$ ?

© Houghton Mifflin Harcourt Publishing Company

$9 \times 6$

Hint:  
What is  $6 \times 9$ ?

© Houghton Mifflin Harcourt Publishing Company

$9 \bullet 7$

Hint:  
What is  $7 \cdot 9$ ?

© Houghton Mifflin Harcourt Publishing Company

$9 * 8$

Hint:  
What is  $8 * 9$ ?

© Houghton Mifflin Harcourt Publishing Company

$9 \times 9$

© Houghton Mifflin Harcourt Publishing Company

$\times$

$\bullet$

$*$

$\times$

$\times$

$\bullet$

$*$

$\times$

You can write any numbers on the last 8 cards. Use them to practice difficult problems or if you lose a card.

$$9 \overline{)45}$$

Hint: What is  
 $\square \times 9 = 45?$

© Houghton Mifflin Harcourt Publishing Company

$$9 \overline{)36}$$

Hint: What is  
 $\square \times 9 = 36?$

© Houghton Mifflin Harcourt Publishing Company

$$9 \overline{)27}$$

Hint: What is  
 $\square \times 9 = 27?$

© Houghton Mifflin Harcourt Publishing Company

$$9 \overline{)18}$$

Hint: What is  
 $\square \times 9 = 18?$

© Houghton Mifflin Harcourt Publishing Company

$$9 \overline{)81}$$

Hint: What is  
 $\square \times 9 = 81?$

© Houghton Mifflin Harcourt Publishing Company

$$9 \overline{)72}$$

Hint: What is  
 $\square \times 9 = 72?$

© Houghton Mifflin Harcourt Publishing Company

$$9 \overline{)63}$$

Hint: What is  
 $\square \times 9 = 63?$

© Houghton Mifflin Harcourt Publishing Company

$$9 \overline{)54}$$

Hint: What is  
 $\square \times 9 = 54?$

© Houghton Mifflin Harcourt Publishing Company

$\overline{\hspace{1cm}}$   
)

You can write any numbers on the last 8 cards. Use them to practice difficult problems or if you lose a card.

$3 \times 2$

Hint:  
What is  $2 \times 3$ ?

© Houghton Mifflin Harcourt Publishing Company

$3 \cdot 3$

© Houghton Mifflin Harcourt Publishing Company

$3 * 4$

Hint:  
What is  $4 * 3$ ?

© Houghton Mifflin Harcourt Publishing Company

$3 \times 5$

Hint:  
What is  $5 \times 3$ ?

© Houghton Mifflin Harcourt Publishing Company

$3 \times 6$

Hint:  
What is  $6 \times 3$ ?

© Houghton Mifflin Harcourt Publishing Company

$3 \cdot 7$

Hint:  
What is  $7 \cdot 3$ ?

© Houghton Mifflin Harcourt Publishing Company

$3 * 8$

Hint:  
What is  $8 * 3$ ?

© Houghton Mifflin Harcourt Publishing Company

$3 \times 9$

Hint:  
What is  $9 \times 3$ ?

© Houghton Mifflin Harcourt Publishing Company

$4 \times 2$

Hint:  
What is  $2 \times 4$ ?

© Houghton Mifflin Harcourt Publishing Company

$4 \cdot 3$

Hint:  
What is  $3 \cdot 4$ ?

© Houghton Mifflin Harcourt Publishing Company

$4 * 4$

Hint:  
What is  $5 \times 4$ ?

© Houghton Mifflin Harcourt Publishing Company

$4 \times 5$

Hint:  
What is  $5 \times 4$ ?

© Houghton Mifflin Harcourt Publishing Company

$4 \times 6$

Hint:  
What is  $6 \times 4$ ?

© Houghton Mifflin Harcourt Publishing Company

$4 \cdot 7$

Hint:  
What is  $7 \cdot 4$ ?

© Houghton Mifflin Harcourt Publishing Company

$4 * 8$

Hint:  
What is  $8 * 4$ ?

© Houghton Mifflin Harcourt Publishing Company

$4 \times 9$

Hint:  
What is  $9 \times 4$ ?

© Houghton Mifflin Harcourt Publishing Company

$$3 \overline{)15}$$

Hint: What is  
 $\square \times 3 = 15?$

© Houghton Mifflin Harcourt Publishing Company

$$3 \overline{)12}$$

Hint: What is  
 $\square \times 3 = 12?$

© Houghton Mifflin Harcourt Publishing Company

$$3 \overline{)9}$$

Hint: What is  
 $\square \times 3 = 9?$

© Houghton Mifflin Harcourt Publishing Company

$$3 \overline{)6}$$

Hint: What is  
 $\square \times 3 = 6?$

© Houghton Mifflin Harcourt Publishing Company

$$3 \overline{)27}$$

Hint: What is  
 $\square \times 3 = 27?$

© Houghton Mifflin Harcourt Publishing Company

$$3 \overline{)24}$$

Hint: What is  
 $\square \times 3 = 24?$

© Houghton Mifflin Harcourt Publishing Company

$$3 \overline{)21}$$

Hint: What is  
 $\square \times 3 = 21?$

© Houghton Mifflin Harcourt Publishing Company

$$3 \overline{)18}$$

Hint: What is  
 $\square \times 3 = 18?$

© Houghton Mifflin Harcourt Publishing Company

$$4 \overline{)20}$$

Hint: What is  
 $\square \times 4 = 20?$

© Houghton Mifflin Harcourt Publishing Company

$$4 \overline{)16}$$

Hint: What is  
 $\square \times 4 = 16?$

© Houghton Mifflin Harcourt Publishing Company

$$4 \overline{)12}$$

Hint: What is  
 $\square \times 4 = 12?$

© Houghton Mifflin Harcourt Publishing Company

$$4 \overline{)8}$$

Hint: What is  
 $\square \times 4 = 8?$

© Houghton Mifflin Harcourt Publishing Company

$$4 \overline{)36}$$

Hint: What is  
 $\square \times 4 = 36?$

© Houghton Mifflin Harcourt Publishing Company

$$4 \overline{)32}$$

Hint: What is  
 $\square \times 4 = 32?$

© Houghton Mifflin Harcourt Publishing Company

$$4 \overline{)28}$$

Hint: What is  
 $\square \times 4 = 28?$

© Houghton Mifflin Harcourt Publishing Company

$$4 \overline{)24}$$

Hint: What is  
 $\square \times 4 = 24?$

© Houghton Mifflin Harcourt Publishing Company

© Houghton Mifflin Harcourt Publishing Company

$6 \times 2$

Hint:  
What is  $2 \times 6$ ?

© Houghton Mifflin Harcourt Publishing Company

$6 \cdot 3$

Hint:  
What is  $3 \cdot 6$ ?

© Houghton Mifflin Harcourt Publishing Company

$6 * 4$

Hint:  
What is  $4 * 6$ ?

© Houghton Mifflin Harcourt Publishing Company

$6 \times 5$

Hint:  
What is  $5 \times 6$ ?

© Houghton Mifflin Harcourt Publishing Company

$6 \times 6$

© Houghton Mifflin Harcourt Publishing Company

$6 \cdot 7$

Hint:  
What is  $7 \cdot 6$ ?

© Houghton Mifflin Harcourt Publishing Company

$6 * 8$

Hint:  
What is  $8 * 6$ ?

© Houghton Mifflin Harcourt Publishing Company

$6 \times 9$

Hint:  
What is  $9 \times 6$ ?

© Houghton Mifflin Harcourt Publishing Company

$7 \times 2$

Hint:  
What is  $2 \times 7$ ?

© Houghton Mifflin Harcourt Publishing Company

$7 \cdot 3$

Hint:  
What is  $3 \cdot 7$ ?

© Houghton Mifflin Harcourt Publishing Company

$7 * 4$

Hint:  
What is  $4 * 7$ ?

© Houghton Mifflin Harcourt Publishing Company

$7 \times 5$

Hint:  
What is  $5 \times 7$ ?

© Houghton Mifflin Harcourt Publishing Company

$7 \times 6$

Hint:  
What is  $6 \times 7$ ?

© Houghton Mifflin Harcourt Publishing Company

$7 \cdot 7$

Hint:  
What is  $8 \cdot 7$ ?

© Houghton Mifflin Harcourt Publishing Company

$7 * 8$

Hint:  
What is  $9 \times 7$ ?

© Houghton Mifflin Harcourt Publishing Company

$7 \times 9$

Hint:  
What is  $9 \times 7$ ?

© Houghton Mifflin Harcourt Publishing Company

$$6 \overline{)30}$$

Hint: What is  
 $\square \times 6 = 30$ ?

© Houghton Mifflin Harcourt Publishing Company

$$6 \overline{)24}$$

Hint: What is  
 $\square \times 6 = 24$ ?

© Houghton Mifflin Harcourt Publishing Company

$$6 \overline{)18}$$

Hint: What is  
 $\square \times 6 = 18$ ?

© Houghton Mifflin Harcourt Publishing Company

$$6 \overline{)12}$$

Hint: What is  
 $\square \times 6 = 12$ ?

© Houghton Mifflin Harcourt Publishing Company

$$6 \overline{)54}$$

Hint: What is  
 $\square \times 6 = 54$ ?

© Houghton Mifflin Harcourt Publishing Company

$$6 \overline{)48}$$

Hint: What is  
 $\square \times 6 = 48$ ?

© Houghton Mifflin Harcourt Publishing Company

$$6 \overline{)42}$$

Hint: What is  
 $\square \times 6 = 42$ ?

© Houghton Mifflin Harcourt Publishing Company

$$6 \overline{)36}$$

Hint: What is  
 $\square \times 6 = 36$ ?

© Houghton Mifflin Harcourt Publishing Company

$$7 \overline{)35}$$

Hint: What is  
 $\square \times 7 = 35$ ?

© Houghton Mifflin Harcourt Publishing Company

$$7 \overline{)28}$$

Hint: What is  
 $\square \times 7 = 28$ ?

© Houghton Mifflin Harcourt Publishing Company

$$7 \overline{)21}$$

Hint: What is  
 $\square \times 7 = 21$ ?

© Houghton Mifflin Harcourt Publishing Company

$$7 \overline{)14}$$

Hint: What is  
 $\square \times 7 = 14$ ?

© Houghton Mifflin Harcourt Publishing Company

$$7 \overline{)63}$$

Hint: What is  
 $\square \times 7 = 63$ ?

© Houghton Mifflin Harcourt Publishing Company

$$7 \overline{)56}$$

Hint: What is  
 $\square \times 7 = 56$ ?

© Houghton Mifflin Harcourt Publishing Company

$$7 \overline{)49}$$

Hint: What is  
 $\square \times 7 = 49$ ?

© Houghton Mifflin Harcourt Publishing Company

$$7 \overline{)42}$$

Hint: What is  
 $\square \times 7 = 42$ ?

© Houghton Mifflin Harcourt Publishing Company

© Houghton Mifflin Harcourt Publishing Company

$8 \times 2$

Hint:  
What is  $2 \times 8$ ?

© Houghton Mifflin Harcourt Publishing Company

$8 \cdot 3$

Hint:  
What is  $3 \cdot 8$ ?

© Houghton Mifflin Harcourt Publishing Company

$8 * 4$

Hint:  
What is  $4 * 8$ ?

© Houghton Mifflin Harcourt Publishing Company

$8 \times 5$

Hint:  
What is  $5 \times 8$ ?

© Houghton Mifflin Harcourt Publishing Company

$8 \times 6$

Hint:  
What is  $6 \times 8$ ?

© Houghton Mifflin Harcourt Publishing Company

$8 \cdot 7$

Hint:  
What is  $7 \cdot 8$ ?

© Houghton Mifflin Harcourt Publishing Company

$8 * 8$

Hint:  
What is  $8 * 8$ ?

© Houghton Mifflin Harcourt Publishing Company

$8 \times 9$

Hint:  
What is  $9 \times 8$ ?

© Houghton Mifflin Harcourt Publishing Company

×

•

\*

×

×

•

\*

×

You can write any numbers on the last 8 cards. Use them to practice difficult problems or if you lose a card.

$$8 \overline{)40}$$

Hint: What is  
 $\square \times 8 = 40?$

© Houghton Mifflin Harcourt Publishing Company

$$8 \overline{)32}$$

Hint: What is  
 $\square \times 8 = 32?$

© Houghton Mifflin Harcourt Publishing Company

$$8 \overline{)24}$$

Hint: What is  
 $\square \times 8 = 24?$

© Houghton Mifflin Harcourt Publishing Company

$$8 \overline{)16}$$

Hint: What is  
 $\square \times 8 = 16?$

© Houghton Mifflin Harcourt Publishing Company

$$8 \overline{)72}$$

Hint: What is  
 $\square \times 8 = 72?$

© Houghton Mifflin Harcourt Publishing Company

$$8 \overline{)64}$$

Hint: What is  
 $\square \times 8 = 64?$

© Houghton Mifflin Harcourt Publishing Company

$$8 \overline{)56}$$

Hint: What is  
 $\square \times 8 = 56?$

© Houghton Mifflin Harcourt Publishing Company

$$8 \overline{)48}$$

Hint: What is  
 $\square \times 8 = 48?$

© Houghton Mifflin Harcourt Publishing Company

)

)

)

)

)

)

)

)

You can write any numbers on the last 8 cards. Use them to practice difficult problems or if you lose a card.


**Diagnostic Checkup for Basic Multiplication**

1.  $7 \times 5 = \underline{\quad}$       2.  $2 \times 3 = \underline{\quad}$       3.  $9 \times 9 = \underline{\quad}$       4.  $9 \times 6 = \underline{\quad}$

5.  $6 \times 2 = \underline{\quad}$       6.  $3 \times 0 = \underline{\quad}$       7.  $3 \times 4 = \underline{\quad}$       8.  $6 \times 8 = \underline{\quad}$

9.  $5 \times 9 = \underline{\quad}$       10.  $3 \times 3 = \underline{\quad}$       11.  $2 \times 9 = \underline{\quad}$       12.  $5 \times 7 = \underline{\quad}$

13.  $6 \times 10 = \underline{\quad}$       14.  $4 \times 1 = \underline{\quad}$       15.  $6 \times 4 = \underline{\quad}$       16.  $4 \times 8 = \underline{\quad}$

17.  $5 \times 2 = \underline{\quad}$       18.  $1 \times 3 = \underline{\quad}$       19.  $3 \times 9 = \underline{\quad}$       20.  $7 \times 6 = \underline{\quad}$

21.  $7 \times 2 = \underline{\quad}$       22.  $9 \times 0 = \underline{\quad}$       23.  $8 \times 9 = \underline{\quad}$       24.  $8 \times 7 = \underline{\quad}$

25.  $8 \times 10 = \underline{\quad}$       26.  $6 \times 3 = \underline{\quad}$       27.  $4 \times 4 = \underline{\quad}$       28.  $3 \times 8 = \underline{\quad}$

29.  $5 \times 5 = \underline{\quad}$       30.  $6 \times 0 = \underline{\quad}$       31.  $7 \times 9 = \underline{\quad}$       32.  $6 \times 6 = \underline{\quad}$

33.  $9 \times 2 = \underline{\quad}$       34.  $8 \times 3 = \underline{\quad}$       35.  $5 \times 4 = \underline{\quad}$       36.  $7 \times 7 = \underline{\quad}$

37.  $5 \times 10 = \underline{\quad}$       38.  $5 \times 1 = \underline{\quad}$       39.  $10 \times 9 = \underline{\quad}$       40.  $5 \times 6 = \underline{\quad}$

41.  $6 \times 5 = \underline{\quad}$       42.  $9 \times 3 = \underline{\quad}$       43.  $4 \times 2 = \underline{\quad}$       44.  $7 \times 8 = \underline{\quad}$

45.  $8 \times 2 = \underline{\quad}$       46.  $5 \times 0 = \underline{\quad}$       47.  $4 \times 9 = \underline{\quad}$       48.  $6 \times 7 = \underline{\quad}$

49.  $9 \times 5 = \underline{\quad}$       50.  $6 \times 1 = \underline{\quad}$       51.  $7 \times 4 = \underline{\quad}$       52.  $9 \times 8 = \underline{\quad}$

53.  $4 \times 10 = \underline{\quad}$       54.  $5 \times 3 = \underline{\quad}$       55.  $6 \times 9 = \underline{\quad}$       56.  $8 \times 6 = \underline{\quad}$

57.  $8 \times 5 = \underline{\quad}$       58.  $8 \times 0 = \underline{\quad}$       59.  $8 \times 4 = \underline{\quad}$       60.  $4 \times 7 = \underline{\quad}$

61.  $3 \times 5 = \underline{\quad}$       62.  $7 \times 3 = \underline{\quad}$       63.  $5 \times 9 = \underline{\quad}$       64.  $3 \times 6 = \underline{\quad}$

65.  $7 \times 10 = \underline{\quad}$       66.  $8 \times 1 = \underline{\quad}$       67.  $0 \times 4 = \underline{\quad}$       68.  $9 \times 7 = \underline{\quad}$

69.  $4 \times 5 = \underline{\quad}$       70.  $4 \times 3 = \underline{\quad}$       71.  $1 \times 9 = \underline{\quad}$       72.  $8 \times 8 = \underline{\quad}$



▶  **Diagnostic Checkup for Basic Division**

- |                                      |                                     |                                     |                                     |
|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. $12 \div 2 = \underline{\quad}$   | 2. $8 \div 1 = \underline{\quad}$   | 3. $36 \div 9 = \underline{\quad}$  | 4. $35 \div 7 = \underline{\quad}$  |
| 5. $20 \div 5 = \underline{\quad}$   | 6. $24 \div 3 = \underline{\quad}$  | 7. $12 \div 4 = \underline{\quad}$  | 8. $6 \div 6 = \underline{\quad}$   |
| 9. $6 \div 2 = \underline{\quad}$    | 10. $3 \div 3 = \underline{\quad}$  | 11. $18 \div 9 = \underline{\quad}$ | 12. $63 \div 7 = \underline{\quad}$ |
| 13. $20 \div 10 = \underline{\quad}$ | 14. $0 \div 1 = \underline{\quad}$  | 15. $40 \div 4 = \underline{\quad}$ | 16. $48 \div 8 = \underline{\quad}$ |
| 17. $18 \div 2 = \underline{\quad}$  | 18. $6 \div 3 = \underline{\quad}$  | 19. $8 \div 4 = \underline{\quad}$  | 20. $36 \div 6 = \underline{\quad}$ |
| 21. $8 \div 2 = \underline{\quad}$   | 22. $9 \div 1 = \underline{\quad}$  | 23. $9 \div 9 = \underline{\quad}$  | 24. $56 \div 7 = \underline{\quad}$ |
| 25. $40 \div 5 = \underline{\quad}$  | 26. $9 \div 3 = \underline{\quad}$  | 27. $36 \div 4 = \underline{\quad}$ | 28. $56 \div 8 = \underline{\quad}$ |
| 29. $80 \div 10 = \underline{\quad}$ | 30. $7 \div 1 = \underline{\quad}$  | 31. $45 \div 9 = \underline{\quad}$ | 32. $48 \div 6 = \underline{\quad}$ |
| 33. $5 \div 5 = \underline{\quad}$   | 34. $30 \div 3 = \underline{\quad}$ | 35. $16 \div 4 = \underline{\quad}$ | 36. $72 \div 8 = \underline{\quad}$ |
| 37. $10 \div 2 = \underline{\quad}$  | 38. $1 \div 1 = \underline{\quad}$  | 39. $54 \div 9 = \underline{\quad}$ | 40. $21 \div 7 = \underline{\quad}$ |
| 41. $25 \div 5 = \underline{\quad}$  | 42. $15 \div 3 = \underline{\quad}$ | 43. $32 \div 4 = \underline{\quad}$ | 44. $24 \div 8 = \underline{\quad}$ |
| 45. $90 \div 10 = \underline{\quad}$ | 46. $18 \div 3 = \underline{\quad}$ | 47. $63 \div 9 = \underline{\quad}$ | 48. $54 \div 6 = \underline{\quad}$ |
| 49. $45 \div 5 = \underline{\quad}$  | 50. $6 \div 1 = \underline{\quad}$  | 51. $20 \div 4 = \underline{\quad}$ | 52. $49 \div 7 = \underline{\quad}$ |
| 53. $15 \div 5 = \underline{\quad}$  | 54. $0 \div 3 = \underline{\quad}$  | 55. $28 \div 4 = \underline{\quad}$ | 56. $30 \div 6 = \underline{\quad}$ |
| 57. $16 \div 2 = \underline{\quad}$  | 58. $21 \div 3 = \underline{\quad}$ | 59. $81 \div 9 = \underline{\quad}$ | 60. $64 \div 8 = \underline{\quad}$ |
| 61. $30 \div 5 = \underline{\quad}$  | 62. $12 \div 3 = \underline{\quad}$ | 63. $27 \div 9 = \underline{\quad}$ | 64. $42 \div 7 = \underline{\quad}$ |
| 65. $40 \div 10 = \underline{\quad}$ | 66. $10 \div 1 = \underline{\quad}$ | 67. $24 \div 4 = \underline{\quad}$ | 68. $18 \div 6 = \underline{\quad}$ |
| 69. $35 \div 5 = \underline{\quad}$  | 70. $27 \div 3 = \underline{\quad}$ | 71. $72 \div 9 = \underline{\quad}$ | 72. $42 \div 6 = \underline{\quad}$ |

▶ **PATH to FLUENCY** Patterns With 10s, 5s, and 9s

These multiplication tables help us see some patterns that make recalling basic multiplications easier.

1. What pattern do you see in the 10s count-bys?

\_\_\_\_\_

2. Look at the 5s and the 10s together. What patterns do you see?

\_\_\_\_\_

3. Look at the 9s count-bys. How does each 9s count-by relate to the 10s count-by in the next row?

\_\_\_\_\_

How could this pattern help you remember the 9s count-bys?

\_\_\_\_\_

4. Look at the digits in each 9s product. What is the sum of the digits in each 9s product?

\_\_\_\_\_

How could you use this knowledge to check your answers when you multiply by 9?

\_\_\_\_\_

5's and 10s

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

9's

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

**▶ PATH to FLUENCY Patterns With Other Numbers**

On these grids, find patterns with 2s, 4s, 6s, and 8s.

5. Look at the ones digits in all the 2s, 4s, 6s, and 8s count-bys. What pattern do you see?

\_\_\_\_\_

6. Are the 2s, 4s, 6s, and 8s products even numbers or odd numbers?

\_\_\_\_\_

2's, 4's, 6's, 8's

×	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54
7	7	14	21	28	35	42	49	56	63
8	8	16	24	32	40	48	56	64	72
9	9	18	27	36	45	54	63	72	81
10	10	20	30	40	50	60	70	80	90

On the multiplication table labeled **Doubles**, look for rows that have products that are double the product in other rows.

7. Name the factors that have products that are double the products of another factor.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Doubles

×	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54
7	7	14	21	28	35	42	49	56	63
8	8	16	24	32	40	48	56	64	72
9	9	18	27	36	45	54	63	72	81
10	10	20	30	40	50	60	70	80	90

8. How can you find  $6 \times 8$  if you know  $3 \times 8$ ?

\_\_\_\_\_

Rewrite each list of numbers so that it is a count by list.

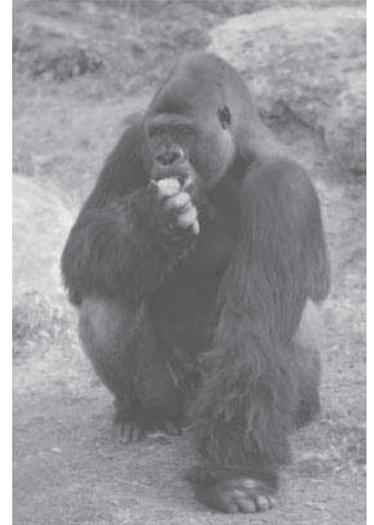
9. 4, 8, 12, 18, 20, 24, 28 \_\_\_\_\_

10. 18, 28, 36, 45, 54, 63, 70 \_\_\_\_\_

## ► Math and Recipes

The animal keepers at zoos feed and care for the animals. The animal keepers consult a zoo nutritionist to decide what and how much to feed the animals. In the zoo kitchens there are recipes posted for each type of animal such as the one shown below.

Gorilla Zoo Stew	
32 carrots	8 yams
32 oranges	8 eggs
24 apples	16 bananas
64 ounces Monkey Chow	72 grapes
48 ounces primate-diet food	56 stalks of celery
8 heads lettuce, any variety	bales of hydroponic grass to taste
Toss all ingredients lightly. Divide among 8 trays.	
The recipe makes 8 gorilla servings.	



Write an equation and solve the problem.

1. How much of each ingredient is in 1 gorilla serving?

---



---



---

2. How much of each ingredient in the Gorrilla Zoo Stew recipe is needed to serve 6 gorillas?

---



---

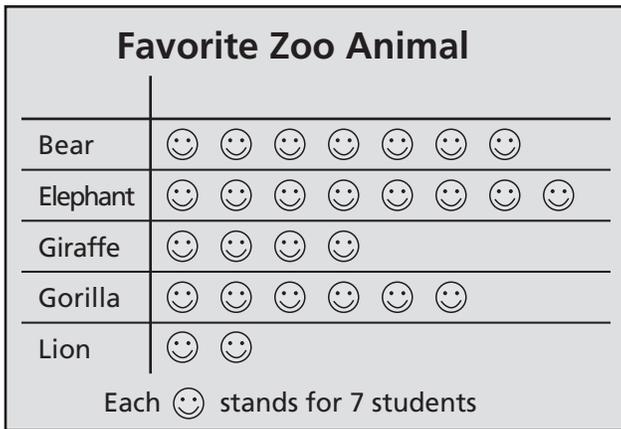


---



## ► Favorite Zoo Animals

A third grade class took a field trip to a zoo. The students were asked to name their favorite zoo animal. The pictograph below shows the animals the students chose.



3. Use the information in the pictograph to complete the chart to show the number of students that chose each zoo animal.

Favorite Zoo Animal	
Zoo Animal	Number of Students
Bear	
Elephant	
Giraffe	
Gorilla	
Lion	

**Solve.**

4. If 63 students chose a zebra as their favorite zoo animal, how many symbols would you use to show that on the pictograph?
- \_\_\_\_\_

Solve.

1. Write the numbers that complete the unknown number puzzle.



×	9		2
6		18	
	45	15	
	72	24	16

Explain how you found the number in the circle.

2. There are 56 books on a library cart. Each student helper puts 7 books on a shelf. How many student helpers are there?

For numbers 2a–2d, choose Yes or No to tell whether the equation could be used to solve the problem.

2a.  $56 \times 7 = \square$        Yes       No

2b.  $56 \div 7 = \square$        Yes       No

2c.  $7 \times \square = 56$        Yes       No

2d.  $7 \div \square = 56$        Yes       No



3. Raul makes a sign for the school fair. It has a length of 9 inches and a width of 8 inches. What is the area of the sign?

Draw a rectangle to help solve the problem. Label your drawing.

Write an equation to solve the problem.

Area of the sign: \_\_\_\_\_ square inches

4. For numbers 4a–4c, select True or False for each statement.

4a. The first step to solve  $3 + 2 \times 4$  is  $3 + 2$ .

True  False

4b. The first step to solve  $5 \times 4 \div 2$  is  $5 \times 4$

True  False

4c. The first step to solve  $(9 - 6) \div 3$  is  $9 - 6$ .

True  False

5. Write a problem that can be solved using the given equation. Then solve.

$$7 \times 6 = \square$$

Solution: \_\_\_\_\_ tickets

6. Write the basic multiplication or division in the box that gives the unknown number. Use 8 or 9 for the unknown number.

$7 \times \square = 63$

$36 \div 4 = \square$

$24 \div \square = 3$

$4 \times \square = 32$

$\square \times 9 = 72$

$18 \div 2 = \square$

8	9

7. For numbers 7a–7d, choose Yes or No to tell whether the product is correct.

7a.  $3 \times 30 = 900$        Yes       No

7b.  $5 \times 40 = 200$        Yes       No

7c.  $2 \times 40 = 800$        Yes       No

7d.  $9 \times 60 = 540$        Yes       No

8. Carrie finds 7 seashells at the beach. Her brother finds 8 seashells. They divide the seashells equally among 3 people. How many seashells did each person get? Write an equation to solve the problem.

Equation: \_\_\_\_\_

\_\_\_\_\_ seashells



9. A toy store sells 7 different model cars. Each model car comes in 5 different colors. How many different model cars are there?

**Part A**

Solve the problem.

\_\_\_\_\_ different model cars

**Part B**

Choose the type of problem and the operation you use to solve.

The type is

array

equal groups

area

. The operation is

multiplication

division

Write another problem that is the same type.

10. Write a question for the given information. Then write an equation and solve.

A museum has 297 visitors on Friday. It has 468 visitors on Saturday.

Solution: \_\_\_\_\_ visitors

11. How can you use a pattern to find  $6 \times 9$  if you know  $3 \times 9$ ? Complete the given part of the multiplication table to help you explain.

$\times$	1	2	3	4	5	6	7	8	9
3									
6									

12. Select the equations that show square numbers.  
 Mark all that apply.

- (A)  $2 \times 5 = 10$
- (D)  $6 \times 6 = 36$
- (B)  $4 \times 4 = 16$
- (E)  $8 \times 4 = 32$
- (C)  $8 \times 8 = 64$
- (F)  $5 \times 5 = 25$

Draw a picture for one of the equations you chose.  
 Explain why it is a square number.



13. Read the problem. Write the first step question and answer. Then write an equation to solve the problem.

A school buys games for 6 classrooms. It buys 3 board games, 4 puzzles games, and 1 video game for each classroom. How many games does the school buy?

\_\_\_\_\_ games

14. Draw a line to match each expression on the left with an expression on the right that has the same value.

$7 \times 40$  ●

●  $5 \times 6$

$2 \times 4 \times 4$  ●

●  $7 \times 5 + 7 \times 2$

$7 \times 7$  ●

●  $2 + 2$

$2 + 2 \times 4$  ●

●  $28 \times 10$

$5 \times 3 \times 2$  ●

●  $8 \times 4$

$8 \div 4 + 2$  ●

●  $2 + 8$

15. Choose the equations that make the statements true.

You know that

$3 \times 9 = 27$

$3 \times 5 = 15$

$8 \times 6 = 48$

$4 \times 7 = 28$

. So, you know that

$24 \div 3 = 8$

$18 \div 9 = 2$

$36 \div 6 = 6$

$48 \div 8 = 6$