

# Solve Multiplication and Division Problems



The **★BIG Idea**

How can I develop strategies for solving basic multiplication facts and related division facts?

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## Investigate

- Animations
- Vocabulary
- Math Songs
- Multilingual eGlossary

## Learn

- Personal Tutor
- Virtual Manipulatives
- Audio
- Foldables

## Practice

- Self-Check Practice
- eGames
- Worksheets
- Assessment

FOLDABLES

Study Organizer

Make this Foldable to help you organize information about multiplication and division concepts and facts. Start with one sheet of 11" × 17" paper.

### Review Vocabulary

**factor** *factor* a number that is multiplied by another number  
 2 and 3 are factors of 6 because  $2 \times 3 = 6$ .

**array** *arregio* objects or symbols displayed in rows of the same length and columns of the same length

row

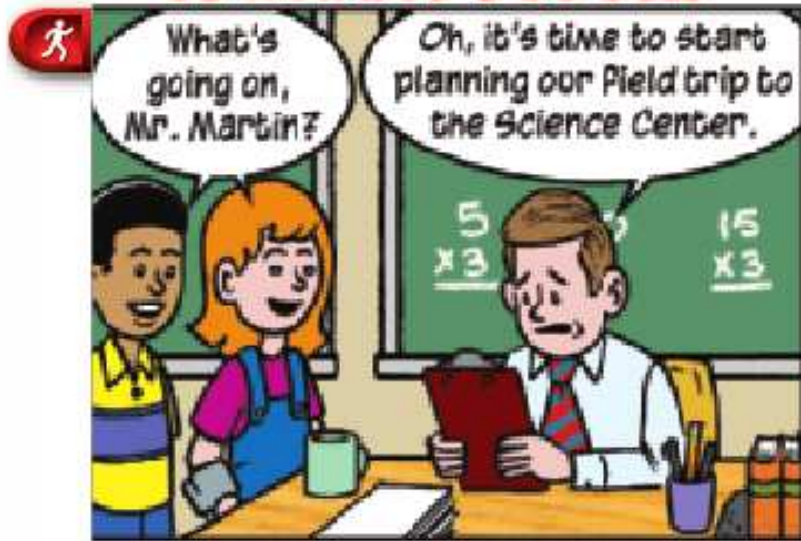
column

### Key Vocabulary

English	Español
partition	separar

# When Will I Use This?

Morgan, Nate, and Mr. Martin in  
**A Leader For All**



**Your Turn!**  
You will solve this problem in the chapter.

# Are You Ready for the Chapter?

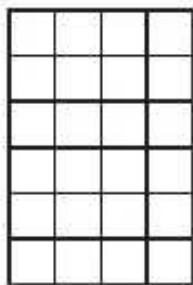
You have two options for checking  
Prerequisite Skills for this chapter.

**Text Option** Take the Quick Check below.

## QUICK Check

**Multiply.**

1.  $6 \times 4$



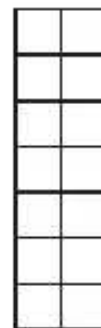
2.  $1 \times 5$



3.  $5 \times 2$



4.  $7 \times 2$



**Draw an array for each fact. Multiply.**

5.  $5 \times 4$

6.  $1 \times 6$

7.  $4 \times 7$

8.  $2 \times 9$

**Solve.**

9. Louis has 2 quarters. Yellow whistles cost 5¢ each. Louis wants to buy 8 whistles. Does he have enough money to buy 8 whistles? Explain.

10. There were 9 oak trees on each side of a street. After some trees were cut down, there were 7 trees left. How many trees were cut down?

**Algebra** Identify a pattern. Then find the missing numbers.

11. ■, ■, 30, 25, 20, 15

12. ■, ■, 16, 14, 12, 10

13. ■, ■, 41, 31, 21, 11

14. 60, 50, 40, 30, ■, ■



**Online Option** Take the Online Readiness Quiz.

**Main Idea**

I will use arrays and bar diagrams to multiply by 2.



Get ConnectED

**GLE 0306.2.2** Develop understanding of multiplication and related division facts through multiple strategies and representations. **GLE 0306.2.4** Solve multiplication and division problems using various representations. Also addresses GLE 0306.1.4, SPI 0306.2.5.

# Multiply by 2

There are many different ways to multiply by 2. One way is to use an array. Another way is to draw a picture.



**REAL-WORLD EXAMPLE**

**Use an Array**

**SCHOOL** The students in an art class are working on a project. How many students are there in the art class if there are 8 groups of 2?



You need to model 8 groups of 2 or  $8 \times 2$ .

<b>One Way: Use an Array</b>	<b>Another Way: Draw a Picture</b>
Show an array with 8 rows and 2 columns.	Draw 8 groups of 2.
$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2$ or 16	$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2$ or 16

So, there are  $8 \times 2$  or 16 students in the art class.



You can also use a bar diagram to multiply by 2.

FOOTER: 450-1000

10

## Remember

Multiplying by 2 is like doubling in addition.



## REAL-WORLD EXAMPLE

### Use a Bar Diagram

2

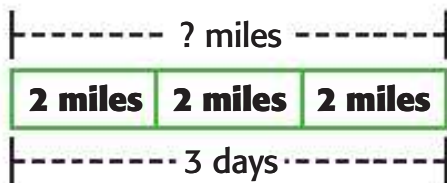
**FRIENDS** Sybil rides her bike to the park Monday, Wednesday, and Friday. It is a 2 mile round-trip. How many miles does she ride for the three days?

**Step 1** Model 2 miles a day as one part.

1 part = 2 miles



**Step 2** Since she rode the same amount for 3 days, model a total of 3 parts.



**Step 3** Write a number sentence.

3 parts =  $3 \times 2$

$3 \times 2 = 6$  So Sybil rode 6 miles.

**Check** Repeated addition shows that  $3 \times 2 = 6$  is correct.

$2 + 2 + 2 = 6$  ✓

## ✓ CHECK What You Know

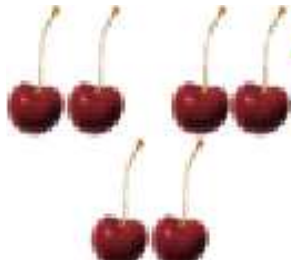
**Multiply.** See Examples 1 and 2

1.



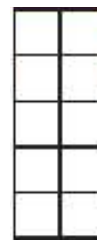
4 groups of 2

2.



3 groups of 2

3.



5 rows of 2

**Multiply.** Use a bar diagram if needed. See Example 2

4.  $6 \times 2$

5.  $2 \times 2$

6.  $9 \times 2$

7.  $8 \times 2$

8. **BAR DIAGRAM** Ten students each have 2 pieces of chalk. How many pieces of chalk are there?

9. **TALK MATH** Explain the different strategies you can use to remember the multiplication facts for 2.

**Multiply.** See Examples 1 and 2

10.



2 groups of 2

11.



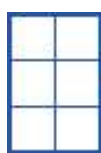
6 groups of 2

12.



7 groups of 2

13.



3 rows of 2

14.



4 rows of 2

15.



5 rows of 2

**Multiply.** Use a bar diagram if needed. See Example 2

16. 
$$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$$

17. 
$$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$$

18. 
$$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$$

19. 
$$\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$$

20.  $2 \times 7$

21.  $2 \times 9$

22.  $6 \times 2$

23.  $10 \times 2$

24.  $2 \times 4$

25.  $2 \times 8$

26.  $2 \times 2$

27.  $3 \times 2$

**Solve.** Use models if needed. See Examples 1 and 2

28. There are 2 squares. How many sides are there in all?

29. There are 2 dogs. How many eyes are there in all?

30. **BAR DIAGRAM** There are 2 spiders. Each has 8 legs. How many legs are there in all?

31. **BAR DIAGRAM** There are 3 students. Each has 2 pencils. How many pencils are there in all?

**H.O.T. Problems**

32. **OPEN ENDED** Write a real-world multiplication word problem with an answer between 11 and 19.

33. **E? WRITE MATH** Write a problem about a real-world situation in which a number is multiplied by 2.

## Main Idea

I will use models to partition when dividing by 2.



## Vocabulary

**partition**

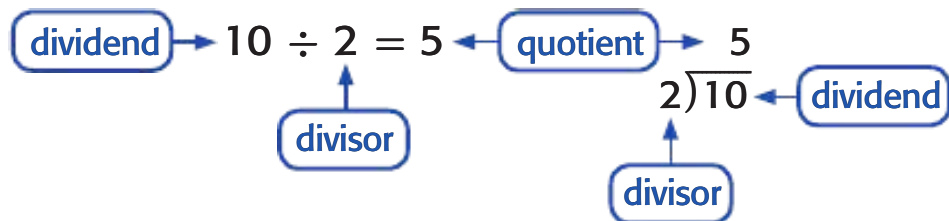


Get Connected

**GLE 0306.2.2**  
Develop understanding of multiplication and related division facts through multiple strategies and representations. **GLE 0306.2.3**  
Relate multiplication and division as inverse operations. Also addresses GLE 0306.2.4, SPI 0306.2.8.

# Divide by 2

In the previous chapter, you learned about the division symbol  $\div$ . Another symbol for division is  $\overline{)}$ .



## REAL-WORLD EXAMPLE Use Models

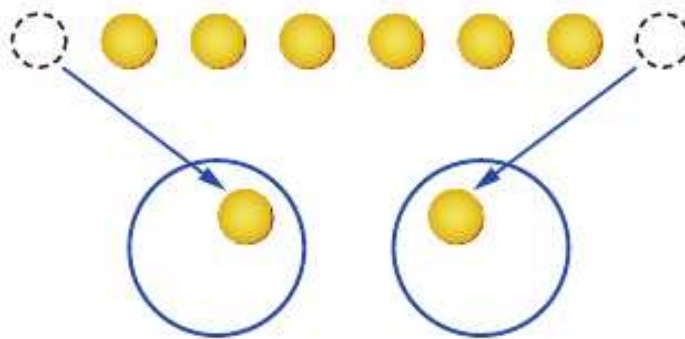
### FRUIT Javier and Alexis

**share an apple equally.**  
**If there are 8 slices,**  
**how many slices will**  
**each of them get?**



To share equally between 2 people means to divide by 2. So, find  $8 \div 2$  or  $2 \overline{)8}$ .

Share or **partition** one counter at a time into each group until the counters are gone.



The model shows  $8 \div 2 = 4$  or  $2 \overline{)8} \begin{matrix} 4 \end{matrix}$ .

Each person will get 4 apple slices.

**REAL-WORLD EXAMPLE**

**Use a Related Fact**

**2 SCHOOL** Twelve students are divided into 2 groups. How many students are in each group?

You can use a related fact to find  $12 \div 2$  or  $2 \overline{)12}$ .


$2 \times \blacksquare = 12$  ← You know that  $2 \times 6 = 12$ .

So,  $12 \div 2 = 6$  or  $2 \overline{)12}^6$ .

There are 6 students in each group.

**CHECK** What You Know

**Divide. Write a related multiplication fact. See Examples 1 and 2**

1.   
 $2 \overline{)4}$


2.   
 $10 \div 2$

3.  $6 \div 2$

4.  $14 \div 2$

5.  $2 \overline{)8}$


6. Victor and his sister each read an equal number of books. Together they read 16 books. Write the number sentence to show how many books they each read.

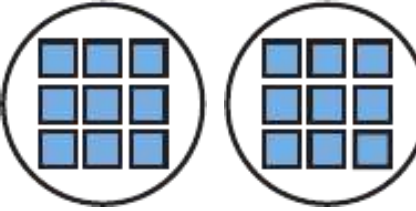
7.  **TALK MATH** What are two different ways to find  $16 \div 2$ ?

**Practice and Problem Solving**

**EXTRA PRACTICE**  
Begins on page EP2.

**Divide. Write a related multiplication fact. See Examples 1 and 2**

8.   
 $14 \div 2$

9.   
 $2 \overline{)18}$

10.  $4 \div 2$

11.  $16 \div 2$

12.  $18 \div 2$

13.  $2 \overline{)2}$

14.  $2 \overline{)20}$

15.  $2 \overline{)6}$



**Solve. Write a number sentence.**

- 16.** Damian will plant 12 seeds in groups of 2. How many groups of 2 will he have once they are all planted?
- 17.** Kyle and Alan equally divide a package of 14 erasers. How many erasers will each person get?
- 18.** Lydia shared her 16 pattern tiles equally with Pilar. Pilar then shared her tiles equally with Timothy. How many tiles does each student have?
- 19.** Each car on the Supersonic Speed ride can hold 18 people. If the seats are in groups of 2, how many groups of two are there on 3 cars?

**Algebra** Copy and complete each table.

**20.**

Rule: Divide by 2.				
Input	10	■	18	14
Output	■	4	■	7

**21.**

Rule: Multiply by 2.				
Input	7	■	6	9
Output	■	2	■	■

**H.O.T. Problems**

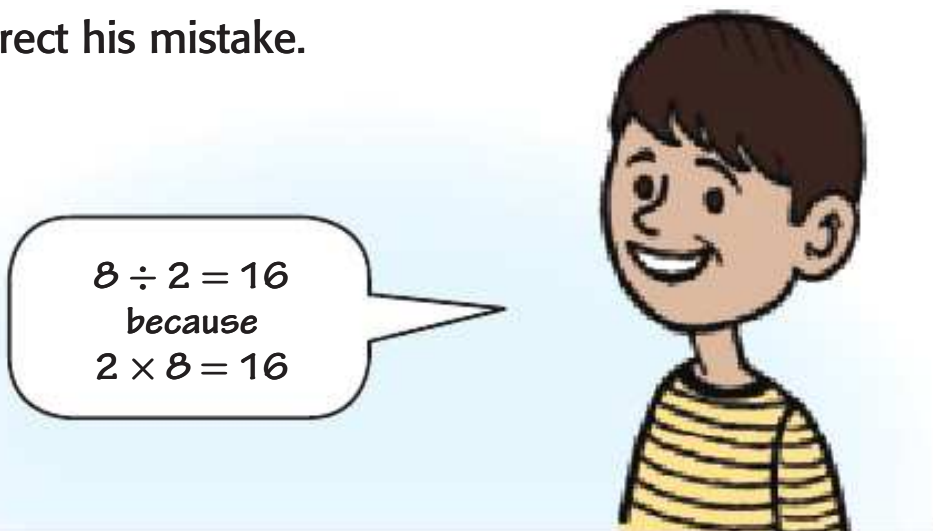
- 22. OPEN ENDED** Write a number that when divided by 2 is more than 8.

**CHALLENGE** Divide.

- 23.**  $36 \div 2$       **24.**  $50 \div 2$       **25.**  $80 \div 2$       **26.**  $42 \div 2$

- 27. FIND THE ERROR** Carlos is finding  $8 \div 2$ .

Find and correct his mistake.



- 28. ? WRITE MATH** Can you divide 9 into equal groups of 2? Explain.



## Test Practice

- 29.** The owner wants to share the fish in the tank equally among 4 small fish bowls.



Which of the following could be used to find the number of fish in each bowl? (Lesson 1B)

- A.**  $8 + 4$                       **C.**  $8 \times 4$   
**B.**  $8 - 4$                       **D.**  $8 \div 4$

- 30.** Ariel and Jonathan share some raisins for a snack. The raisins are shown.



How many raisins will each child get if they share them equally?

(Lesson 1B)

- F.** 4                                      **H.** 16  
**G.** 8                                      **I.** 32

- 31.** What number makes this number sentence true? (Lesson 1A)

$$12 + 8 = \blacksquare \times 2$$

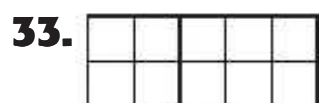
- A.** 5    **B.** 8    **C.** 9    **D.** 10

- 32.** Which of the following is used to find how many legs are on 6 chairs? (Lesson 1B)

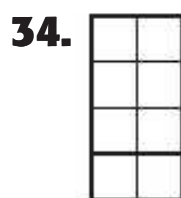
- F.**  $4 \times 6$                               **H.**  $4 + 6$   
**G.**  $4 \div 6$                               **I.**  $6 - 4$

## Spiral Review

**Multiply.** (Lesson 1A)



2 rows of 5



4 rows of 2



7 groups of 2

**Use any strategy to solve.** (Lesson 1A)

- 36.** Lolita read 10 pages in her book each of the last two nights. How many pages did Lolita read the last two nights altogether?

- 37.** Julian bought 8 books this year. He gets a free book every time he buys 1. How many books did he get this year?



## Explore

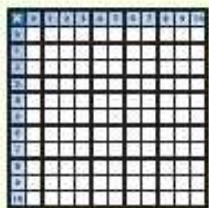
## Find a Missing Factor

### Main Idea

I will explore the multiplication table to look for patterns and find missing factors.

### Materials

multiplication table



**GLE 0306.2.3**  
Relate multiplication and division as inverse operations.  
**SPI 0306.3.3** Find the missing values in simple multiplication and division equations.  
Also addresses GLE 0306.1.3.

You have learned different strategies for finding products.

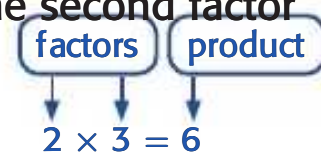
Patterns you find in the multiplication table can help you remember products and find missing factors.

### ACTIVITY

#### 1 Make a Multiplication Table

##### Step 1 Find the factors.

To find the product of two factors, find the first factor in the left column and the second factor across the top row.



**factors**

×	0	1	2	3	4	5	6	7	8	9	10
0											
1											
2				6							
3											
4											
5											
6											
7											
8											
9											
10											

**factors**

Write the product of  $2 \times 3$  where row 2 and column 3 meet.

##### Step 2 Find the products.

Write the products of the multiplication facts you know. Remember that you can use the Commutative Property of Multiplication, a known fact, or patterns.

The multiplication table can also be used to help you find missing factors.

## ACTIVITY

### 2 Find Missing Factors

Arlo was asked to bring 24 juice boxes to his scout meeting. He knows they come in packages of 4.

How many packages will he need?

$$\begin{array}{ccccccc} & \text{packages} & & \text{number in each} & & \text{total} & \\ & & & \text{package} & & & \\ \blacksquare & \times & 4 & = & 24 \end{array}$$

**Step 1** Find the row with 4 as a factor.

×	0	1	2	3	4	5	6
0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6
2	0	2	4	6	8	10	12
3	0	3	6	9	12	15	18
4	0	4	8	12	16	20	24
5	0	5	10	15	20	25	30

**Step 2** Move across the row to find 24, the product.

×	0	1	2	3	4	5	6
0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6
2	0	2	4	6	8	10	12
3	0	3	6	9	12	15	18
4	0	4	8	12	16	20	24
5	0	5	10	15	20	25	30

**Step 3** From 24, move straight up to find the missing factor, 6.  
So,  $6 \times 4 = 24$ . Arlo needs 6 packages of juice boxes.

×	0	1	2	3	4	5	6
0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6
2	0	2	4	6	8	10	12
3	0	3	6	9	12	15	18
4	0	4	8	12	16	20	24
5	0	5	10	15	20	25	30

## Think About It

1. Explain how patterns may help you find a missing factor.
2. How can you use the multiplication table to help find the quotient to a division fact?
3. How does the multiplication table show you that multiplication and division are related?

**Main Idea**

I will use different strategies to multiply by 3.



**GLE 0306.2.2**  
Develop understanding of multiplication and related division facts through multiple strategies and representations. Also addresses GLE 0306.2.4, SPI 0306.2.5.

# Multiply by 3

In the previous lesson, you used a multiplication table to find factors and products.

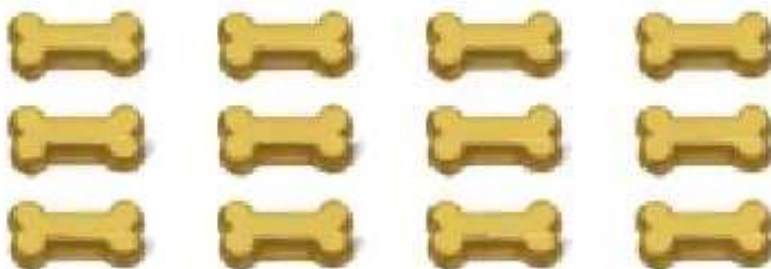
×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

There are other ways you can find products.

**REAL-WORLD EXAMPLE****Use an Array**

**PETS** There are 3 dogs. Each dog buried 4 bones in a yard. How many bones are buried in the yard?

You can use an array to find 3 groups of 4 bones, or  $3 \times 4$ .



So, there are 12 bones buried in the yard.



You can use a number line to help you solve a problem.

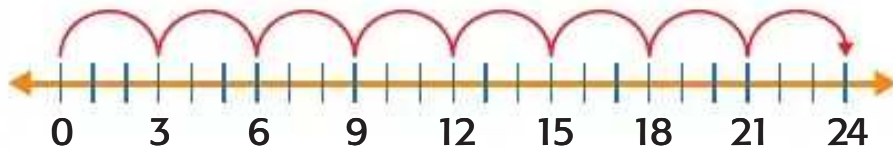
## Remember

You use number patterns when you skip count.

### REAL-WORLD EXAMPLE Skip Count

**2 GAMES** Eight friends have 3 marbles each. How many marbles are there in all?

Each friend has a group of 3 marbles. There are 8 friends. Use a number line to find  $8 \times 3$ .



Eight jumps of 3 is 24.

$$8 \times 3 = 24$$

So, there are 24 marbles in all.

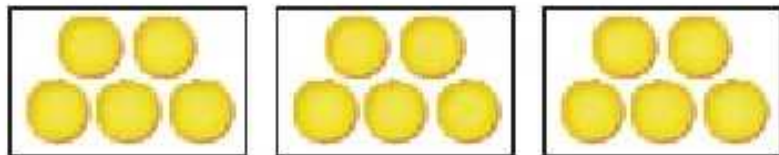
### EXAMPLE Find a Missing Factor

**3** Find the missing factor.

$$3 \times \blacksquare = 15$$

THINK 3 times what number equals 15?

Equally place 15 counters, one at a time, into 3 groups.



Three groups of 5 are 15. The missing factor in the multiplication sentence is 5.

So,  $3 \times 5 = 15$ .

### Key Concept Multiplication Strategies

**There are different strategies you can use to find the products of multiplication problems.**

- Use models or draw a picture.
- Use repeated addition or skip count.
- Draw an array or a bar diagram.
- Use a related multiplication fact.
- Use patterns.

## CHECK What You Know

**Multiply. Draw an array or skip count if needed. See Examples 1 and 2**

1. 
$$\begin{array}{r} 3 \\ \times 1 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

3.  $3 \times 8$

4.  $3 \times 6$

**Algebra Find each missing factor. See Example 3**

5.  $3 \times \blacksquare = 18$

6.  $\blacksquare \times 5 = 15$

7.  $\blacksquare \times 7 = 21$

8. The branches on a tree have leaves that grow in groups of 3. How many leaves are on 9 branches?

9.  **TALK MATH** Explain two ways to find the product of  $3 \times 7$ .

## Practice and Problem Solving

**EXTRA PRACTICE**

Begins on page EP2.

**Multiply. Draw an array or skip count if needed. See Examples 1 and 2**

10. 
$$\begin{array}{r} 1 \\ \times 3 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 10 \\ \times 3 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 3 \\ \times 4 \\ \hline \end{array}$$

13. 
$$\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$$

14.  $9 \times 3$

15.  $3 \times 7$

16.  $3 \times 3$

17.  $6 \times 3$

18.  $7 \times 3$

19.  $3 \times 4$

20.  $3 \times 5$

21.  $3 \times 10$

**Algebra Find each missing factor. See Example 3**

22.  $1 \times \blacksquare = 3$

23.  $3 \times \blacksquare = 9$

24.  $\blacksquare \times 3 = 15$

25.  $\blacksquare \times 3 = 27$

26.  $4 \times \blacksquare = 12$

27.  $\blacksquare \times 3 = 6$

28. There are 9 students. They each put 3 books on a shelf. How many books did they place on the shelf?


29. There are 7 daisies and 7 tulips. Each flower has 3 petals. How many petals are there in all?

30. Hoshi, Joan, and Kita each had 3 snacks packed in their lunch boxes. They each ate one snack in the morning. How many snacks are left in all?

31. Thom is buying 4 packages of seeds. Each package costs \$3 and contains 5 envelopes of seeds. What will be the total cost? How many envelopes will he have?

## H.O.T. Problems

32. **OPEN ENDED** Look at the 3s row in a multiplication table. Describe the pattern.

33.  **WRITE MATH** Write a real-world problem that contains groups of 3. Ask a classmate to solve. Check the answer.



## Test Practice

- 34.** In the pattern below, each number is 2 times greater than the number before it. What is the next number in the pattern? (Lesson 1A)

1, 2, 4, 8 \_\_\_\_\_

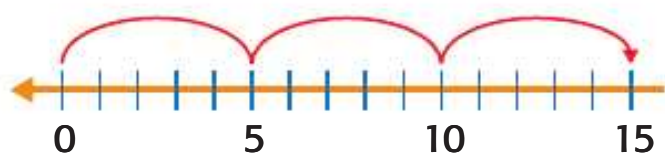
- A.** 10                      **C.** 16  
**B.** 12                      **D.** 18

- 35.** Jenny has 20 beads. Which number sentence shows how many bracelets Jenny can make if each has the number of beads shown below. (Lesson 1B)



- F.**  $20 + 10 = 30$   
**G.**  $20 \div 10 = 2$   
**H.**  $20 - 10 = 10$   
**I.**  $20 \times 10 = 200$

- 36.** Which number sentence does the number line model? (Lesson 1D)



- A.**  $5 \times \blacksquare = 20$     **C.**  $3 \times \blacksquare = 15$   
**B.**  $2 \times \blacksquare = 20$     **D.**  $15 \times \blacksquare = 15$

- 37.** Jeslin bought 3 pairs of socks. Each pair of socks cost the same price. How much did each pair of socks cost? (Lesson 1D)



- F.** \$5                      **H.** \$7  
**G.** \$6                      **I.** \$8

## Spiral Review

**Algebra** Find each missing number. (Lesson 1B)

**38.**  $16 \div \blacksquare = 2$

**39.**  $14 \div 2 = \blacksquare$

**40.**  $6 \div \blacksquare = 3$

**Divide.** Write a related multiplication fact. (Lesson 1B)

- 41.** Each student in the Art Club must pay \$2 for supplies. If \$20 was collected, how many students are in the club?

- 42.** Twelve students are going on a field trip. There are 2 vans that hold the same number of students. How many students will go in each van?





## Main Idea

I will use multiplication and subtraction to divide by 3.



**GLE 0306.2.2**  
Develop understanding of multiplication and related division facts through multiple strategies and representations.

**GLE 0306.2.3** Relate multiplication and division as inverse operations. Also addresses GLE 0306.1.7, SPI 0306.2.8.

# Divide by 3

You have used the multiplication table to find missing factors. It can also be used to divide.

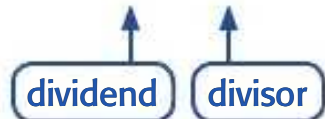
## REAL-WORLD EXAMPLE

**MARKERS** Marlo, Maria, and Tani have 24 markers in all. Each person has the same number of markers. How many markers does each person have?

Use the Multiplication Table



Divide a group of 24 into 3 equal groups. Find  $24 \div 3$  or  $3 \overline{)24}$ .

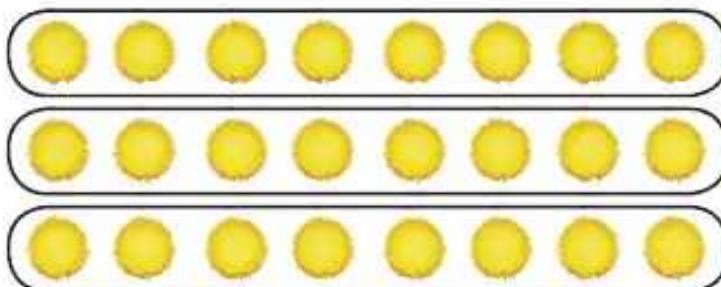


- Locate row 3.
- Follow row 3 to 24.
- Move straight up the column to the quotient.

×	1	2	3	4	5	6	7	8
1	1	2	3	4	5	6	7	8
2	2	4	6	8	10	12	14	16
3	3	6	9	12	15	18	21	24
4	4	8	12	16	20	24	28	32
5	5	10	15	20	25	30	35	40
6	6	12	18	24	30	36	42	48
7	7	14	21	28	35	42	49	56
8	8	16	24	32	40	48	56	64

So,  $24 \div 3 = 8$  or  $3 \overline{)24}^8$ . Each person has 8 markers.

**Check** The array below shows that  $24 \div 3$  is 8. ✓



You can use related facts to help you divide.



**REAL-WORLD EXAMPLE** Use Related Facts

**2 TRAVEL** To travel to the beach, Angela and her 14 friends will divide up equally into 3 cars. How many friends will be in each car?

You need to find  $15 \div 3$  or  $3 \overline{)15}$ .

$$15 \div 3 = \blacksquare$$

$$3 \times \blacksquare = 15$$

$$3 \times 5 = 15$$

So,  $15 \div 3 = 5$  or  $3 \overline{)15}^5$ .

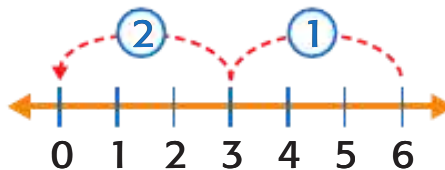
There will be 5 friends in each car.

THINK 3 times what number equals 15?

You can use repeated subtraction on a number line to divide.

**EXAMPLE** Use Repeated Subtraction

**3** Find  $6 \div 3$  or  $3 \overline{)6}$ .



- Start at 6 and count back by 3s to 0.
- 3 was subtracted two times.

So,  $6 \div 3 = 2$  or  $3 \overline{)6}^2$ .

**Remember**

A division sentence like  $3 \overline{)6}$  is read "six divided by three." Always read the dividend under the symbol first.

**CHECK** What You Know

**Divide.** See Examples 1–3

1.  $12 \div 3$

2.  $18 \div 3$

3.  $3 \overline{)9}$

4.  $3 \overline{)27}$

5. Rosa spent \$30 on 2 skirts and a purse. Each item costs the same. How much did each item cost?

6. **TALK MATH** How can you use  $8 \times 3$  to find  $24 \div 3$ ?

**Divide.** See Examples 1–3

7.  $15 \div 3$

8.  $9 \div 3$

9.  $6 \div 3$

10.  $18 \div 3$

11.  $16 \div 2$

12.  $20 \div 2$

13.  $3 \overline{)12}$

14.  $3 \overline{)3}$

15.  $3 \overline{)30}$

16.  $3 \overline{)27}$

17.  $3 \overline{)21}$

18.  $3 \overline{)24}$

**Algebra** Copy and complete each table.

19.

Rule: Divide by 3.				
Input	21	■	30	■
Output	■	4	■	6

20.

Rule: Subtract 3.				
Input	28	■	33	■
Output	■	15	■	16

21. A soccer coach buys 3 new soccer balls for \$21. What is the price for each ball? Write a number sentence.

22. There are 27 bananas. They will be divided equally into 3 piles. How many will be in each pile?

23. Stanley is on a 3-day hike. He will hike a total of 18 miles. If he hikes the same number of miles each day, how many miles will he hike the first day?

24. Makenna placed 20 stickers in equal rows of 5. Then, she gave away 2 stickers. Can she make equal rows of 3 now? Explain.

Use the information to solve the problems.

**A Leader For All**



25. Mr. Martin wants to divide the students into groups of 3. How many groups will there be?

26. How many more adult volunteers are needed?

## H.O.T. Problems

**27. NUMBER SENSE** Mr. Marcos buys 4 bottles of glue, 1 stapler, and 2 notebooks. Can the total amount spent be divided equally by 3? Explain.

Item	Cost
Glue	\$2
Stapler	\$5
Notebook	\$3

**28. WHICH ONE DOESN'T BELONG?** Which fact does not belong? Explain.

$$6 \div 3$$

$$3 \overline{)6}$$

$$6 \div 2$$

$$6 \overline{)18}$$

**29. ? WRITE MATH** Explain how to find  $9 \div 3$  two different ways.

## Test Practice

**30.** Mr. Lobo buys 3 of the same item at a store. The total is \$27. What

(Lesson 1E)

did he buy?

**A.**



**C.**



**B.**



**D.**



**31.** Aiden and 2 of his friends each have 10 baseball cards. Which operation sign should be placed in the  $\blacksquare$  to find out how many baseball cards the boys have altogether? (Lesson 1D)

$$3 \blacksquare 10 = 30$$

**F.** +

**G.** -

**H.**  $\times$

**I.**  $\div$

## Spiral Review

**Multiply.** (Lesson 1D)

**32.**  $3 \times 6$

**33.**  $3 \times 3$

**34.**  $8 \times 3$

**35.** Marilyn has 12 shells in some bags.

Each bag has 2 shells. How many bags are there in all? (Lesson 1B)

**36.** Chloe placed biscuit dough in 2

equal rows. There were 7 biscuits in each row. How many biscuits are there on the baking sheet? (Lesson 1A)

## Problem-Solving Strategy: Work Backward

**Main Idea** I will solve a problem by working backward.



Frannie put some money in the bank to start a savings account. Last month she put in enough money to double that amount. Today, she put in more money and the total amount doubled again. Now she has \$20. How much money did Frannie start with?



### Understand What facts do you know?

- The money doubled two times.
- The total amount at the end is \$20.

### What do you need to find?

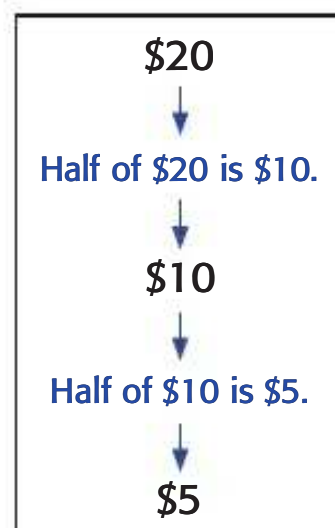
- Find the amount of money Frannie started with.

**Plan** Work backward from what you know, \$20, to find the amount Frannie started with.

**Solve** Start with \$20.

- Find the number that was doubled.
- Since the amount was doubled two times, find half of \$10.

So, the amount of money Frannie started with was \$5.



**Check** When you double \$5, the result is  $\$5 \times 2$  or \$10. When you double \$10, the result is  $\$10 \times 2$  or \$20. So, the answer is correct. ✓

**GLE 0306.1.3** Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.

## EXTEND

Refer to the problem on the previous page.

1. Explain how the *work backward* strategy helped solve the problem.
2. Explain when to use the *work backward* strategy.
3. Suppose Frannie ended up with \$36 after the amount doubled two times. How much did she start with?
4. How would you check your answer in Exercise 3?

## PRACTICE

EXTRA PRACTICE


Begins on page EP2.

Solve. Use the *work backward* strategy.

5. **Measurement** Gerardo took one hour for lunch. Then he worked at a store for 3 hours. If he finished at 5:00 P.M., what time did he start lunch?
6. Flora, Alonso, and Luz went fishing. Find how many fish each caught.
7. Toya celebrated her birthday in March, 4 months after joining the swim team. Two months after joining the team, she swam in her first swim meet. What month did she swim in her first meet?
8. Whitney went to the craft store with \$25. She bought 3 model airplanes for \$4 each. She also bought 2 jars of model paint. She was given the change shown. How much did each jar of paint cost?

Fish Caught	
Name	Fish
Flora.....	3 more than Luz
Alonso.....	3 more than Flora
Luz.....	5 fish



9. Mr. Robbins gave 9 students one pencil each. That afternoon, he gave 5 more students one pencil each. Now he has 15 pencils. How many pencils did he start with?
10.  **WRITE MATH** Write a real-world problem that uses the *work backward* strategy to solve.

## Extend

## Model Multiplication

## Main Idea

I will use technology to model multiplication.

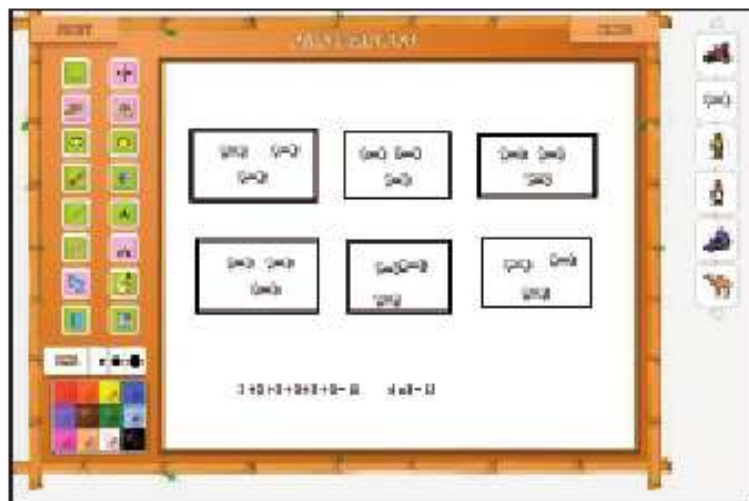


**GLE 0306.1.8** Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts.

You can use the *Math Tool Chest* to model a multiplication problem.

## REAL-WORLD EXAMPLE

- 1 TOYS** A pet store sells dog bones. There are 3 bones in each package. How many bones are in 6 packages?



- Choose the rectangle tool. Make 6 rectangles.
- Choose the dog bone stamp. Stamp 3 dog bones in each rectangle.
- Choose the letter tool. Type an addition sentence and a multiplication sentence.

So, 6 groups of 3 equals 18.

$3 + 3 + 3 + 3 + 3 + 3 = 18$  or  $6 \times 3 = 18$  bones

## Practice and Apply It

Use the *Math Tool Chest* to model each situation. Write an addition sentence and a multiplication sentence.

- Each hour there are 2 cartoons shown on television. How many cartoons are shown in 6 hours?
- A car has 4 tires. How many tires are on 7 cars?
- TALK MATH** How do models help you solve multiplication problems?

# Mid-Chapter Check

**Multiply.** (Lesson 1A)



5 rows of 2



4 rows of 2

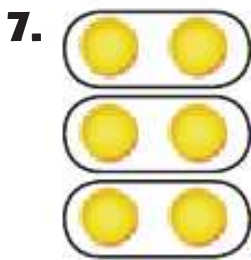
3.  $3 \times 2$

4.  $2 \times 2$

5. 
$$\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$$

**Divide.** Write a related fact. (Lesson 1B and 1E)



$6 \div 3$



$3 \overline{)15}$

9.  $12 \div 2$

10.  $20 \div 2$

11. **MULTIPLE CHOICE** Three times as many students have a hot lunch than a packed lunch. There are 8 students with packed lunches. Which of the following could be used to find how many have hot lunch? (Lesson 1D)




A.  $8 - 3$

C.  $3 \times 8$

B.  $3 + 8$

D.  $8 \times 4$

12. **Algebra** Find a pattern. Complete the table. (Lesson 1B)

18	16	14			
9	8	7	6	5	4

13. A postal worker has 16 packages to deliver to a school. She carries only 2 or 3 packages at a time. What is the fewest number of trips that she can make? What would be the most number of trips she can make? (Lesson 1F)

**Algebra** Find each missing factor. (Lesson 1C)

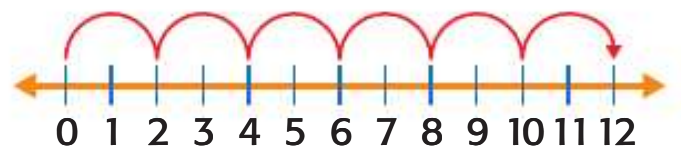
14.  $2 \times \blacksquare = 16$

15.  $2 \times \blacksquare = 2$

16.  $9 \times \blacksquare = 27$

17.  $\blacksquare \times 6 = 12$

18. **MULTIPLE CHOICE** Which number sentence is represented by the number line? (Lesson 1A)




F.  $2 \times 5 = 10$

G.  $6 \times 2 = 12$

H.  $6 \times 2 = 14$

I.  $5 \times 4 = 20$

19.  **WRITE MATH** Explain how patterns in a multiplication table can help you find  $3 \times 9$ . (Lesson 1D)



## Main Idea

I will use different strategies, including patterns, to multiply by 5.



**GLE 0306.2.2**  
Develop understanding of multiplication and related division facts through multiple strategies and representations. **GLE 0306.2.4**  
Solve multiplication and division problems using various representations. Also addresses GLE 0306.1.5, SPI 0306.2.5.

# Multiply by 5

There is more than one way to multiply by 5.



**Draw a Model**

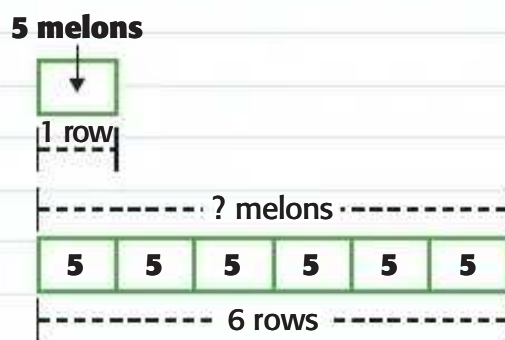
## WATERMELONS

**A watermelon patch has 6 rows of watermelons. Each row has 5 watermelons. How many watermelons are in the farmer's patch?**



You need to find  $6 \times 5$ .

**One Way: Use a Bar Diagram**



1 part is 5 melons.  
6 parts  $\times$  5 melons =  
30 watermelons.

**Another Way: Draw a Picture**



Use repeated addition.  
 $5 + 5 + 5 + 5 + 5 + 5$   
 $= 30$

So,  $6 \times 5 = 30$  watermelons.

You can use patterns to multiply by 5.

## Remember

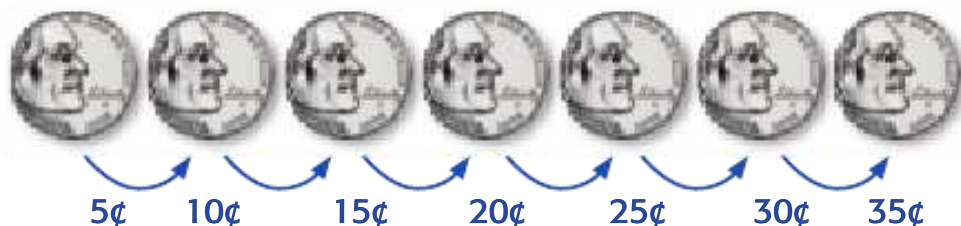
Multiplying by a number is the same as skip counting by that number.

### REAL-WORLD EXAMPLE

### Multiply Using Patterns

**2 NICKELS** Leandro has 7 nickels. How much money does he have?

You know a nickel is 5¢. Count by fives to find  $7 \times 5¢$ .



**Read** 5¢, 10¢, 15¢, 20¢, 25¢, 30¢, 35¢

Notice the patterns in the answers.

$$0 \times 5 = 0$$

$$1 \times 5 = 5$$

$$2 \times 5 = 10$$

$$\begin{array}{r} \times \\ 3 \quad 5 \end{array} = 15$$

Extend the pattern.

$$4 \times 5 = 20$$

$$5 \times 5 = 25$$

$$6 \times 5 = 30$$

$$7 \times 5 = 35$$

All of the products end in 0 or 5.

So, Leandro has  $7 \times 5¢$  or 35¢.

### CHECK What You Know

**Multiply.** Use a bar diagram or draw a picture if needed.

See Examples 1 and 2

1. 
$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

7. **BAR DIAGRAM** Kai, Lakita, and

Maxwell have a box of pretzels. If each gets 5 pretzels, how many pretzels did they have altogether? Explain.

8. **TALK MATH** Explain why the 5s facts might be easier to remember than other facts.

**Multiply.** Use a bar diagram or draw a picture if needed.

See Examples 1 and 2

9.  $2 \times 5$

10.  $3 \times 5$

11.  $5 \times 6$

12.  $7 \times 5$

13.  $8 \times 5$

14.  $5 \times 10$

15.  $5 \times 5$

16.  $5 \times 9$

17.  $4 \times 5$

18. **BAR DIAGRAM** A pan of corn bread is cut into 5 rows with 7 pieces in each row. How many pieces are there in all?

19. A sunflower costs \$6. Evelyn wants to buy 3. Does she have enough money if she has four \$5-bills? Explain.

20. Bernardo's dad paid for his new roller blades with seven \$5-bills. If his dad's change was \$2, how much did the roller blades cost?

21. There are 82 members in a band. Part of the band divides into 5 groups of 9. How many members are not in a group of 9?

### Data File

Almost all grapefruit grown in the United States is grown in Arizona, California, Florida, and Texas.

22. Grapefruit costs \$3 a bag. How much would it cost to buy 5 bags?
23. Emily wants to buy 4 bags of grapefruit. Does she have enough money if she has two \$5-bills? Explain.
24. A farmer picks 45 grapefruit equally from 5 trees in his orchard. What is the total number of grapefruit he picks from 2 trees?



### H.O.T. Problems

25. **WHICH ONE DOESN'T BELONG?** Identify the strategy that will not help you find  $5 \times 6$ . Explain.

skip counting

rounding

make an array

draw a picture

26. **?** **WRITE MATH** Can the ones digit in the product ever end in 2 when you are multiplying by 5? Explain.



# Game Time



You will need: 20 index cards, crayons, 1-inch graph paper for each player

## Factor Power

### Get Ready!

Players: 2 players

### Get Set!

Write the product of all the multiplication facts you have learned so far on each card. Then shuffle.

### Go!

- ★ Player 1 turns over the top card. He or she names two factors of the product on the card.
- ★ Player 1 then colors an array anywhere on the graph paper to match the *factors*.
- ★ Player 2 checks to see if the product matches the number of squares colored in. If it is correct, Player 1 gets 1 point.
- ★ The game continues, with players taking turns, until neither player can make a new array on their graph paper or until one player reaches 10 points after a complete round.



**Main Idea**

I will use multiplication and division as inverse operations to divide by 5.



**GLE 0306.2.2** Develop understanding of multiplication and related division facts through multiple strategies and representations. **GLE 0306.2.3** Relate multiplication and division as inverse operations. Also addresses GLE 0306.2.4, SPI 0306.2.8.

# Divide by 5

There are different ways to divide by 5.

**REAL-WORLD EXAMPLE**

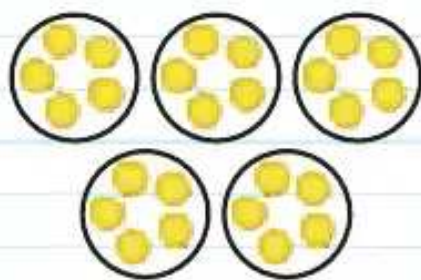
**Use Subtraction**

**MONEY** A group of friends have a lemonade stand. The price of one glass of lemonade is 5¢. They earned 25¢ selling lemonade. How many glasses of lemonade did the group of friends sell?



You need to find  $25¢ \div 5¢$ .

**One Way: Use Models**



There are 25 counters and 5 counters are in each group. There are 5 equal groups.

$$25¢ \div 5¢ = 5 \text{ or } 5 \overline{)25¢}$$

**Another Way: Repeated Subtraction**

①	②	③	④	⑤
25	20	15	10	5
-5	-5	-5	-5	-5
20	15	10	5	0

Subtract groups of 5 until you reach 0. Count the number of groups you subtracted.

$$25¢ \div 5¢ = 5 \text{ or } 5 \overline{)25¢}$$

So, the friends sold 5 glasses of lemonade.

In addition to using models and repeated subtraction, you can use related multiplication facts to divide.

**REAL-WORLD EXAMPLE** Use Related Facts

**2 MONEY** The school store is selling pencils for 5¢ each. If Corey has 45¢, how many pencils can he buy with all his money?



Write a related multiplication fact to find  $45¢ \div 5¢$ .

$$45¢ \div 5¢ = \blacksquare$$

$$5¢ \times \blacksquare = 45¢$$

$$5¢ \times 9 = 45¢$$

THINK What number times 5 is 45¢?

So,  $45¢ \div 5¢ = 9$  or  $5¢ \overline{)45¢}$ . Percy can buy 9 pencils.

**Remember**  
Nickels can be used to represent the number 5.

The picture shows the number sentence  $45¢ \div 5¢ = 9$ .

**Check**



45¢ divided into groups of 5¢ forms 9 groups.

9 groups of 5¢ = 45¢. ✓

**CHECK** What You Know

**Divide. Use models or related facts. See Examples 1 and 2**

1.  $35 \div 5$

2.  $5 \div 5$

3.  $5 \overline{)20}$

4.  $5 \overline{)40}$

**5. Measurement** Lucia's classroom has rows of tables that are a total of 25 feet long. If 5 tables are in each row, how long is each table? Write a number sentence to show the solution.

**6. TALK MATH** How can you tell if a number is divisible by 5?

**Divide. Use models or related facts. See Examples 1 and 2**

7.  $20 \div 5$

8.  $40 \div 5$

9.  $45 \div 5$

10.  $50 \div 5$

11.  $5 \overline{)5}$

12.  $5 \overline{)15}$

13.  $5 \overline{)10}$

14.  $5 \overline{)35}$

**Use the recipe for corn bread.**

**Find how much of each is needed to make 1 loaf of corn bread.**

15. cornmeal

16. flour

17. eggs

18. vanilla extract

### Buttermilk Corn Bread

10 cups cornmeal	3 cups butter
5 cups flour	8 cups buttermilk
1 cup sugar	5 tsp vanilla extract
5 Tbsp baking powder	15 eggs
4 tsp salt	2 tsp baking soda

Makes: 5 loaves

**Solve. Write a number sentence.**

**19. Measurement** Rose has a 30-inch piece of ribbon. She divides the ribbon into 5 equal pieces. How many inches long will each piece be?

**20.** Helen is reading a book with 50 pages. She reads 5 pages every day. How many days will it take her to finish the book?

**21. Measurement** Garrison has 45 minutes to do his homework. He has 9 problems left. How long can he spend on each problem if each one takes an equal amount of time?

**22.** Addison got 40 points on yesterday's 10-question math quiz. Each question is worth 5 points and there is no partial credit. How many questions did he miss?

### REAL-WORLD PROBLEM SOLVING

**Science** The grizzly bear is one of the largest and most powerful animals.

**23.** About how long is a grizzly bear's foot?

**24.** What is the length of one grizzly bear?

**25.** The grizzly runs at a speed of about 35 miles per hour. What is that divided by 5?



## H.O.T. Problems

**26. OPEN ENDED** Write a division sentence with a quotient of 9.

**27. WHICH ONE DOESN'T BELONG?** Identify the division sentence that does not belong. Explain your reasoning.

$$30 \div 5 = 6$$

$$20 \div 2 = 10$$

$$30 \div 6 = 5$$

$$35 \div 5 = 7$$

**28. ? WRITE MATH** Explain the method you would use to find  $30 \div 5$  and why you prefer that method.

## Test Practice

**29.** This is an array for which number sentence? (Lesson 1E)



- A.  $15 \div 3 = 5$
- B.  $3 + 5 = 8$
- C.  $3 + 3 + 3 + 3 = 12$
- D.  $5 \times 5 = 25$

**30.** Robert solved this division problem.

$$20 \div 2 = 10$$

Which problem could he use to check his answer? (Lesson 1B)

- F.  $10 + 2 = \blacksquare$
- G.  $10 - 2 = \blacksquare$
- H.  $10 \times 2 = \blacksquare$
- I.  $10 \div 2 = \blacksquare$

## Spiral Review

**Divide. Write a related multiplication fact.** (Lesson 1B)

**31.**  $18 \div 2$

**32.**  $16 \div 2$

**33.**  $2 \overline{)12}$

**34. BAR DIAGRAM** Angelica had \$40 to buy her mother some birthday gifts. She bought flowers for \$16 and a new pen set for \$8. Then she bought writing paper for \$4. If this



pattern continues, how much money will the next two gifts cost? How much money does she have after buying two more gifts? (Lesson 1B)



**Main Idea**

I will use patterns and models to multiply by 10.

**Vocabulary**  
**multiple****Get ConnectED****GLE 0306.2.2**

Develop understanding of multiplication and related division facts through multiple strategies and representations.

**SPI 0306.2.7** Compute multiplication problems that

involve multiples of ten using basic number facts.

Also addresses: GLE 0306.1.5, GLE 0306.2.4.

# Multiply by 10

Patterns can help you multiply by 10 to solve a problem.

**REAL-WORLD EXAMPLE****Use Patterns**

**TOES** Jason saw footprints on the beach. He counted 10 toes on each of the 3 sets of footprints. How many toes did Jason count in all?



Find  $10 \times 3$ .

Notice the pattern when multiplying by 10.

$$1 \times 10 = 10$$

$$2 \times 10 = 20$$

$$3 \times 10 = 30$$

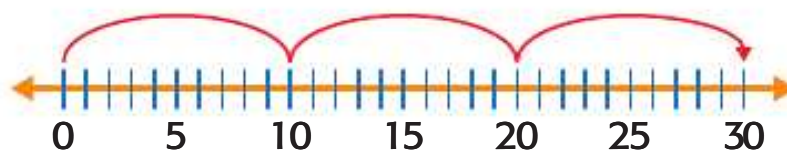
$$4 \times 10 = 40$$

$$5 \times 10 = 50$$

The ones digit of the product is zero.

same

The pattern can also be seen when skip counting on a number line. Count equal jumps of 10 three times.



**Read** 10, 20, 30

The pattern shows that  $3 \times 10 = 30$ .

So, Jason counted 30 toes.

Dimes can be used to model multiplying by 10.

## Remember

When you *multiply*, you add the same number *multiple* times.

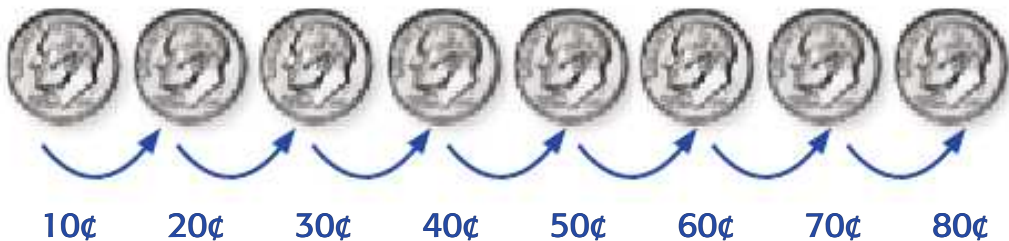
## REAL-WORLD EXAMPLE

Use Models

**2 MONEY** Orlando found 8 dimes under his bed while cleaning. How much money did Orlando find?

You need to find  $8 \times 10\text{¢}$ .

Dimes can be used as models to count by 10.



**Read** 10¢, 20¢, 30¢, 40¢, 50¢, 60¢, 70¢, 80¢

8 dimes shows 80¢.

$$8 \times 10\text{¢} = 80\text{¢}$$

So, Orlando found 80¢.

**Check** Use repeated addition to check.

$$10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 = 80$$

So, the answer is correct. ✓

## CHECK What You Know

**Multiply.** Use patterns or models if needed. See Examples 1 and 2

1. 
$$\begin{array}{r} 10 \\ \times 2 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 10 \\ \times 4 \\ \hline \end{array}$$


3. 
$$\begin{array}{r} 10 \\ \times 7 \\ \hline \end{array}$$

4.  $5 \times 10$

5.  $3 \times 10$

6.  $10 \times 10$

7. Mina bought a dress for \$50. How many \$10 bills will she need to pay for the dress?

8.  **TALK MATH** How can knowing the 5s facts help you with your 10s facts?

**Multiply.** Use patterns or models if needed. See Examples 1 and 2

$$\begin{array}{r} 9. \quad 10 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 10 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 10 \\ \times 5 \\ \hline \end{array}$$

$$12. \quad 10 \times 3$$

$$13. \quad 10 \times 9$$

$$14. \quad 10 \times 1$$

$$15. \quad 8 \times 10$$

$$16. \quad 10 \times 5$$

$$17. \quad 10 \times 6$$

**18.** There are 10 cars. Each has 4 wheels. How many wheels are there altogether?

**19.** Ines has 6 packs of whistles. There are 10 whistles in each pack. How many whistles does she have altogether?

**20. Measurement** There are 3 feet in one yard. How many feet are in 10 yards?

**21.** There are 5 giraffes and 10 birds. How many legs are there altogether?

**Use the Savings Accounts table.**

**22.** How much money have the children saved altogether?

**23. Algebra** Write a multiplication sentence comparing the amount of money that Rebecca has saved with the amount Hakeem has saved.

**24.** What is the difference in the least amount of money saved and the greatest amount saved?

Savings Accounts	
Name	\$10 Bills
Rebecca	7
Bret	3
Monsa	8
Hakeem	9

### REAL-WORLD PROBLEM SOLVING

**Art** Some of the world's largest glass sculptures are found in the United States. Find the length of each sculpture.

**25.** Fiori di Como:  
5 less than  $7 \times 10$ .

**26.** Chihuly Tower:  
5 more than  $10 \times 5$ .

**27.** Cobalt Blue Chandelier:  
9 more than  $2 \times 10$ .

**28.** River Blue: 4 more than  $10 \times 1$ .

World's Largest Glass Sculptures	
Sculpture Name	Length (feet)
Fiori di Como, NV	■
Chihuly Tower, OK	■
Cobalt Blue Chandelier, WA	■
River Blue, CT	■



## H.O.T. Problems

- 29. WHICH ONE DOESN'T BELONG?** Identify the pair of multiplication sentences that is false.

$2 \times 5 = 10 \times 1$

$4 \times 3 = 6 \times 2$

$5 \times 4 = 2 \times 10$

$10 \times 3 = 5 \times 1$

- 30. ? WRITE MATH** Explain how you know that a multiplication fact with an answer of 25 cannot be a 10s fact.

### More About

### Multiplying by 10 and 100

You can use a basic fact and patterns of zeros to mentally find the products of numbers multiplied by 10 and 100.



#### EXAMPLES

#### Multiply by 10 and 100.

1

Use a basic fact and patterns of zeros to find  $3 \times 100$ .

$3 \times 1 = 3$  basic fact

$3 \times 10 = 30$   $3 \times 1$  ten = 3 tens

$3 \times 100 = 300$   $3 \times 1$  hundred = 3 hundreds

2

Use a basic fact and patterns of zeros to find  $6 \times 200$ .

$6 \times 2 = 12$  basic fact

$6 \times 20 = 120$   $6 \times 2$  tens = 12 tens

$6 \times 200 = 1,200$   $6 \times 2$  hundreds = 12 hundreds

A **multiple** is the product of a given number and any other whole number.



#### EXAMPLE

#### Multiples of 10 and 100.

3

Use a basic fact and patterns of zeros to find  $4 \times 200$ .

$4 \times 2 = 8$  basic fact

$4 \times 20 = 80$   $4 \times 2$  tens = 8 tens

$4 \times 200 = 800$   $4 \times 2$  hundreds = 8 hundreds

**Multiply. Use basic facts and patterns.**

**31.**  $2 \times 1 = \blacksquare$

$2 \times 10 = \blacksquare$

$2 \times 100 = \blacksquare$

**32.**  $9 \times 1 = \blacksquare$

$9 \times 10 = \blacksquare$

$9 \times 100 = \blacksquare$

**33.**  $7 \times 2 = \blacksquare$

$7 \times 20 = \blacksquare$

$7 \times 200 = \blacksquare$

**34.**  $8 \times 300$

**35.**  $5 \times 30$

**36.**  $6 \times 50$

- 37.** There are 200 hotel rooms in each of the two large hotels downtown. What is the total number of rooms?



**Main Idea**

I will use repeated subtraction and related facts to divide by 10.

**GLE 0306.2.2**

Develop understanding of multiplication and related division facts through multiple strategies and representations. **GLE 0306.2.3** Relate multiplication and division as inverse operations. Also addresses *SPI 0306.2.6*, *SPI 0306.3.2*.

# Divide by 10

You can use subtraction or multiplication to find the quotient to a division problem.

**REAL-WORLD EXAMPLE**

**Use Subtraction or Multiplication**

**SCHOOL** There are 10 juice bars in a box. The third grade class needs 50 juice bars for a party treat. How many boxes of juice bars will the third grade class need?



You need to find  $50 \div 10$ .

**One Way: Use Repeated Subtraction**

$$\begin{array}{r}
 \textcircled{1} \\
 50 \\
 -10 \\
 \hline
 40
 \end{array}
 \begin{array}{r}
 \textcircled{2} \\
 40 \\
 -10 \\
 \hline
 30
 \end{array}
 \begin{array}{r}
 \textcircled{3} \\
 30 \\
 -10 \\
 \hline
 20
 \end{array}
 \begin{array}{r}
 \textcircled{4} \\
 20 \\
 -10 \\
 \hline
 10
 \end{array}
 \begin{array}{r}
 \textcircled{5} \\
 10 \\
 -10 \\
 \hline
 0
 \end{array}$$

Subtract groups of 10 until you reach 0. Count the number of groups you subtracted. You subtracted groups of 10 five times.

**Another Way: Use a Related Fact**

You know that multiplication and division are inverse operations.

$$\text{So, } 10 \times 5 = 50 \text{ and } 50 \div 10 = 5 \text{ or } 10 \overline{)50}^5.$$

They will need 5 boxes of juice bars.

 **CHECK** What You Know

**Divide.** See Example 1


1.  $20 \div 10$

2.  $40 \div 10$

3.  $10 \overline{)60}$

4.  $10 \overline{)10}$

5. There are 30 chairs at 10 tables. Each table has an equal number of chairs. How many chairs are at each table? Write a number sentence.

6.  **TALK MATH** When you divide by 10, what do you notice about the quotient and dividend?

**Practice and Problem Solving**

**EXTRA PRACTICE**

Begins on page EP2.

**Divide.** See Example 1

7.  $30 \div 10$

8.  $50 \div 10$

9.  $80 \div 10$

10.  $90 \div 10$

11.  $10 \overline{)20}$

12.  $10 \overline{)70}$

13.  $10 \overline{)30}$

14.  $10 \overline{)40}$

**Solve. Write a number sentence.**

15. A vase holds 40 flowers. There are an equal number of daisies, roses, tulips, and lilies. How many of each kind of flower are there in the vase?

16. Rona went to the car show and saw 60 cars. If he saw 10 of each kind of car, how many different kinds of cars were there?


**For Exercises 17–19, use the sign shown.**

17. Julius spent 70¢ on sunflower seeds. How many packages did he buy?
18. How much did Neila pay for 1 yogurt?
19. How much would it cost to buy 1 of everything, including 1 piece of dried fruit?

HEALTH SHACK'S SNACKS	
Sunflower seeds	10¢ per package
Dried fruit	10 pieces for 50¢
Juice	20¢ each
Yogurt	2 for 80¢



**H.O.T. Problems**

20. **OPEN ENDED** Use the numerals 7, 0, 8, and 5 to write two 2-digit numbers that can be divided by 10.
21.  **WRITE MATH** Explain how counting by 10s can help you find  $80 \div 10$ .





## Test Practice

**22.** Amado bought 30 frozen pizzas. They were equally packed with 5 in each box. Which number sentence shows how to find the number of boxes of pizza he bought? (Lesson 2B)

- A.  $30 - 5 = \blacksquare$
- B.  $30 + 5 = \blacksquare$
- C.  $30 \times 5 = \blacksquare$
- D.  $30 \div 5 = \blacksquare$

**23.** Look at the number sentence below.

$$90 \div \blacksquare = 9$$

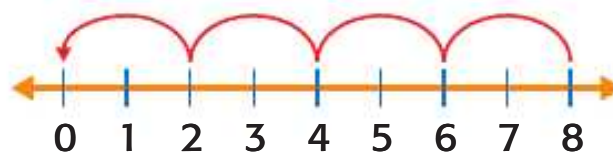
Which number will make the number sentence true? (Lesson 2D)

- F. 1
- G. 10
- H. 81
- I. 100

**24.** Austin collected 9 shells every day while at the beach. How many shells did he collect over his 10-day vacation? (Lesson 2C)

- A. 19
- B. 90
- C. 100
- D. 190

**25.** Which number sentence is modeled by repeated subtraction on the number line? (Lesson 1B)



- F.  $4 \div 2 = 8$
- G.  $16 \div 2 = 8$
- H.  $8 \div 2 = 4$
- I.  $24 \div 8 = 3$

## Spiral Review

**Divide.** (Lesson 2B)

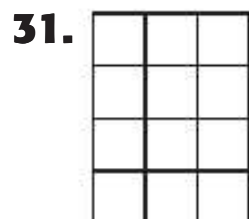
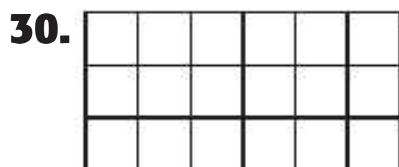
**26.**  $25 \div 5$

**27.**  $45 \div 5$

**28.**  $50 \div 5$

**29.** There are 40 soccer players. Each team will have 1 coach and an equal number of players. If there are 5 coaches, how many players will be on each team? Write a number sentence to record the solution. (Lesson 2B)

**Write a multiplication sentence for each array.** (Lesson 1D)





# Facts Practice

**Multiply.**

**1.** 
$$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$$

**2.** 
$$\begin{array}{r} 2 \\ \times 10 \\ \hline \end{array}$$

**3.** 
$$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$$

**4.** 
$$\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$$

**5.** 
$$\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$$

**6.** 
$$\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$$

**7.** 
$$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$$

**8.** 
$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

**9.** 
$$\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array}$$

**10.** 
$$\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$$

**11.** 
$$\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$$

**12.** 
$$\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$$

**13.** 
$$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$$

**14.** 
$$\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$$

**15.** 
$$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$$

**16.** 
$$\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$$

**17.** 
$$\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$$

**18.** 
$$\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$$

**19.** 
$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

**20.** 
$$\begin{array}{r} 3 \\ \times 4 \\ \hline \end{array}$$

**21.**  $2 \times 5$

**22.**  $5 \times 3$

**23.**  $5 \times 10$

**24.**  $7 \times 2$

**25.**  $2 \times 8$

**26.**  $10 \times 2$

**27.**  $2 \times 9$

**28.**  $8 \times 5$

**29.**  $10 \times 10$

**30.**  $5 \times 9$

**31.**  $4 \times 5$

**32.**  $4 \times 10$

**33.**  $10 \times 7$

**34.**  $8 \times 2$

**35.**  $9 \times 2$

**36.**  $6 \times 5$



## Communities Within Communities

A community is a group of people who work, live, or play together. There are over 2,000 elementary schools in Florida, and each school is a community. Your classroom is also a community.

Often, a class works together on an art project. A mural is an art project that many people can work on together. It is a large painting that sometimes covers an entire wall.

There are many other examples of communities. In Florida, there are over 400 cities, towns, and villages. Each is a community. There are more than 1 million businesses in Florida that also form communities. Each of the families in Florida is a community, too.





## Real-World Math

Use the information on the previous page to solve each problem.

- 1** A group is painting a mural of their community. They have 14 pictures of places around their community. The mural is 7 feet wide. If they want to place the pictures evenly, how many will be placed in each foot of space?
- 2** A community has a Clean Up Litter Day. Thirty-five community members come to help. They divide into groups of five. How many groups are there?
- 3** There are 20 students in a class. A teacher forms 5 equal groups from the 20 students in her class. How many students are in each group?
- 4** There are about two times as many families in California as in Florida. California has more than 8 million families. About how many families are in Florida? Write a number sentence to represent your thinking.
- 5** A community has 45 stores. There are 5 stores on each street. How many streets are in the community?
- 6** Ten schools in a community donate a total of 30 boxes of clothes to a local charity. Each school donates the same number of boxes. How many boxes of clothes does each school donate?

# Problem-Solving Investigation

**Main Idea** I will choose the best strategy to solve a problem.



**ASHTON:** My doctor saw 20 patients in 5 hours today. She saw the same number of patients each hour.

**YOUR MISSION:** Find the number of patients my doctor saw each hour.

## Understand

In 5 hours, the doctor saw 20 patients.

## Plan

Use division to find how many patients the doctor saw each hour in the 5 hours.

## Solve

You need to find  $20 \div 5$ .

total number of patients		number of hours	=	number of patients
-----------------------------	--	--------------------	---	-----------------------

$$20 \div 5 = 4$$

So, the doctor saw 4 patients each hour.



## Check

You can use multiplication to check division.

$$5 \times 4 = 20 \checkmark$$

So, it makes sense that 4 patients would have been seen each hour.

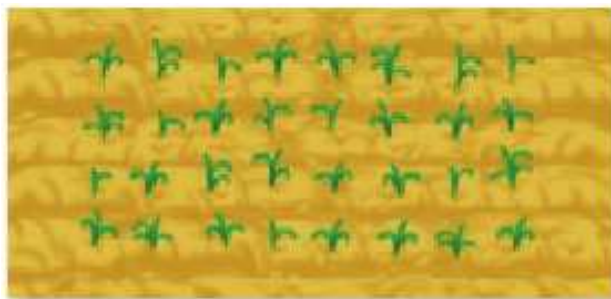
**GLE 0306.1.2** Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution. Also addresses GLE 0306.2.2. GLE 0306.2.4.

- Choose an operation.
- Look for a pattern.
- Make a table.

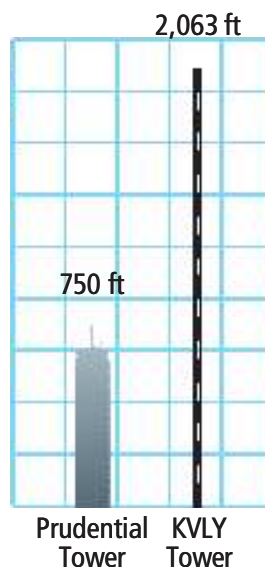
Use any strategy to solve each

problem.

- Write a multiplication sentence to find how many plants are in the garden. What other operation can help you solve this problem?



- Measurement** How much taller is the KVLV TV tower than the Prudential Tower? Explain.



- Shaun and Dean went to the park. The leaves were brown, red, and orange. They picked 7 of each color. How many leaves did they pick in all?

- Measurement** It rained 6 inches each month for the last 5 months. If it rains 6 more inches this month, what will be the total rainfall?

- Sondra and Wanda were making jewelry for the school fundraiser. They each made the amount listed. How many items were made in all?



- Measurement** Melody has 14 feet of string. She wants to make necklaces that are 2 feet long. How many necklaces can she make?
- Geometry** Jermaine has a square garden. Each side is 5 yards. How many yards of fence does he need to border the garden? Explain.
- A group of 16 people want to go to the zoo. Use the sign below to find how they can get the lowest cost for admission.



- WRITE MATH** Explain how to read a problem and decide what operation to use.

**Main Idea**

I will use number properties to multiply by 0 and 1.

**Get Connected****GLE 0306.2.2**

Develop understanding of multiplication and related division facts through multiple strategies and representations.

**GLE 0306.2.4** Solve multiplication and division problems using various representations.

# Multiply by 0 and 1

There are special properties for multiplying by 1 and 0.

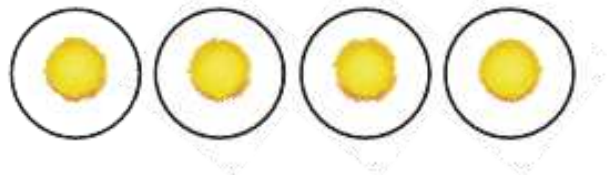
The **Identity Property of Multiplication** says that when any number is multiplied by 1, the product is that number.

**REAL-WORLD EXAMPLE****Multiply by 1**

**1** **FLOWERS** There are **4 flowerpots. Each has 1 daisy. Find  $4 \times 1$  to find how many daisies there are in all.**



Model 4 groups of 1



The model shows 4 groups of 1.

So,  $4 \times 1 = 4$ .

The **Zero Property of Multiplication** says that when you multiply a number by 0, the product is zero.

**EXAMPLE****Multiply by 0**

**2** Find  $6 \times 0$ . Use the pattern shown.

$$1 \times 0 = 0$$

Any number times zero equals 0.

$$2 \times 0 = 0$$

$$3 \times 0 = 0$$

$$4 \times 0 = 0$$

So,  $6 \times 0 = 0$ .

 **CHECK** What You Know

**Multiply.** See Examples 1 and 2


1. 
$$\begin{array}{r} 9 \\ \times 0 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 1 \\ \times 7 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 5 \\ \times 0 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 8 \\ \times 1 \\ \hline \end{array}$$

5. There is 1 student sitting at each of the 9 tables in the cafeteria. How many students are there altogether?

6.  **TALK MATH** If 100 is multiplied by 0, what will be the answer? Explain your reasoning.

**Practice and Problem Solving**

**EXTRA PRACTICE**  
Begins on page EP2.

**Multiply.** See Examples 1 and 2

7. 
$$\begin{array}{r} 7 \\ \times 1 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 7 \\ \times 0 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 10 \\ \times 1 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 10 \\ \times 0 \\ \hline \end{array}$$

11.  $8 \times 0$

12.  $1 \times 2$

13.  $0 \times 1$

14.  $6 \times 1$

**Solve. Use models if needed.**

15. How many pouches does 1 kangaroo have?

16. How many legs do 8 snakes have?

17. In a fantasy story, a pirate found 3 empty treasure chests with no jewels. How many jewels were there?

18. There is only 1 book on the shelf. It has 90 pages. How many pages are there altogether?

**Algebra** Find each missing factor.

19.  $\blacksquare \times 6 = 6$

20.  $\blacksquare \times 8 = 0$

21.  $6 \times \blacksquare = 0$

22.  $1 \times \blacksquare = 0$

**H.O.T. Problems**

23. **OPEN ENDED** Write a problem using one of the multiplication properties that you have just learned. Explain how to find the answer.

**CHALLENGE** Find the missing number.

24.  $2,684 \times \blacksquare = 2,684$

25.  $1,039 \times 1 = \blacksquare$

26.  $27 \times \blacksquare = 0$

27.  **WRITE MATH** Explain the Zero Property of Multiplication.

**Main Idea**

I will use division rules to divide with 0 and 1.



**GLE 0306.2.2** Develop understanding of multiplication and related division facts through multiple strategies and representations.  
**GLE 0306.2.4** Solve multiplication and division problems using various representations.

# Divide with 0 and 1

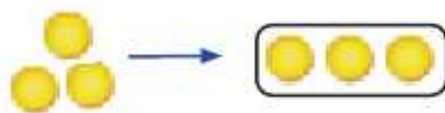
There are rules you can use when 0 and 1 are divisors.

**REAL-WORLD EXAMPLE**

**Divide by 1**

**TOYS** There are 3 toys. One storage box will hold 3 toys. How many boxes will you need for 3 toys?

Find  $3 \div 1$  or  $1 \overline{)3}$ .  
 Since 3 toys fit in 1 box, make groups of 3, using counters.



There is 1 group of 3.  
 So,  $3 \div 1 = 3$  or  $1 \overline{)3}$ .

**Key Concept**

**Division Rules**

**Words** When you divide any number (except 0) by itself, the quotient is 1.

**Example**  $4 \div 4 = 1$   $4 \overline{)4}$

**Words** When you divide any number by 1, the quotient is the same as the dividend.

**Example**  $4 \div 1 = 4$   $1 \overline{)4}$

**Words** When you divide 0 by any number (except 0), the quotient is 0.

**Example**  $0 \div 4 = 0$   $4 \overline{)0}$

**Words** You cannot divide by 0.

## ✓ CHECK What You Know

**Divide.** See Example 1

1.  $5 \div 1$

2.  $0 \div 1$

3.  $1 \div 1$

4.  $1 \overline{)9}$


5.  $0 \div 7$

6.  $10 \div 1$

7.  $6 \overline{)0}$

8.  $7 \overline{)7}$

9. If 6 people show up at the theater and there are 6 seats left, how many seats will each person get?

10.  **TALK MATH** Can you divide a number by 0? Can you divide 0 by a number other than 0? Explain.

## Practice and Problem Solving

**EXTRA PRACTICE**

Begins on page EP2.

**Divide.** See Example 1

11.  $2 \div 1$

12.  $10 \div 10$

13.  $0 \div 5$

14.  $6 \div 1$

15.  $0 \div 3$

16.  $0 \div 9$

17.  $1 \overline{)4}$

18.  $5 \overline{)5}$

19.  $1 \overline{)7}$

20.  $2 \overline{)2}$

21.  $1 \overline{)10}$

22.  $10 \overline{)0}$

**Solve. Write a number sentence.**

23. There are 35 students in Mr. Macy's class. To play a game, each person needs 1 playing piece. How many playing pieces are needed for the class to play the game?

24. Mr. Carrington has a pack of paper with 5 different colors. If he gives 1 of each color to his students, how many pieces of paper will they each have?


25. Kari wants to give 5 friends an apple. She finds that she has no apples. How many apples can she give to her friends?

26. May and her 4 friends have 5 glasses of juice. How many glasses of juice will each person get?



## H.O.T. Problems

27. **OPEN ENDED** Write a real-world division problem in which a number is divided by itself. Ask a classmate to answer it.

28.  **WRITE MATH** Explain how you could divide any number someone gives you, except 0, by 1 or itself.





# Facts Practice

**Multiply.**

1. 
$$\begin{array}{r} 0 \\ \times 2 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 10 \\ \times 5 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 0 \\ \times 9 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 6 \\ \times 1 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 10 \\ \times 8 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 0 \\ \times 6 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 1 \\ \times 9 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 4 \\ \times 0 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$$

13. 
$$\begin{array}{r} 10 \\ \times 0 \\ \hline \end{array}$$

14. 
$$\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$$

15. 
$$\begin{array}{r} 1 \\ \times 6 \\ \hline \end{array}$$

16. 
$$\begin{array}{r} 2 \\ \times 10 \\ \hline \end{array}$$

17. 
$$\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$$

18. 
$$\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$$

19. 
$$\begin{array}{r} 1 \\ \times 1 \\ \hline \end{array}$$

20. 
$$\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$$

21.  $4 \times 3$

22.  $10 \times 1$

23.  $0 \times 3$

24.  $9 \times 1$

25.  $0 \times 8$

26.  $10 \times 7$

27.  $1 \times 4$

28.  $2 \times 6$

29.  $5 \times 10$

30.  $0 \times 7$

31.  $1 \times 0$

32.  $10 \times 6$

33.  $1 \times 0$

34.  $5 \times 6$

35.  $10 \times 3$

36.  $2 \times 0$

37.  $10 \times 10$

38.  $0 \times 10$

39.  $1 \times 5$

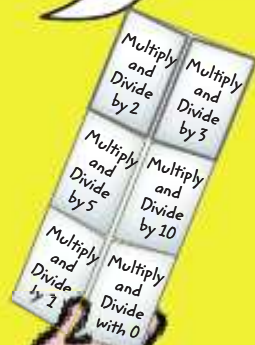
40.  $0 \times 4$

# Chapter Study Guide and Review

**FOLDABLES**  
Study Organizer

Be sure the following Key Concepts are noted in

your Foldable.



## Key Concepts

### Multiplication Strategies (Lesson 1)

- models
- related facts
- repeated addition
- bar diagrams
- arrays
- patterns

### Division Strategies (Lesson 1)

- models
- arrays
- related facts
- repeated subtraction

### Multiplication Properties (Lesson 3)

#### • Identity Property of Multiplication

The product of a number multiplied by 1 is that number.

$$8 \times 1 = 8$$

#### • Zero Property of Multiplication

The product of a number multiplied by 0 is 0.

$$8 \times 0 = 0$$

### Division Rules (Lesson 3)

- The quotient of a number divided by itself is 1.

$$8 \div 8 = 1$$

- You cannot divide by 0.

## Key Vocabulary

**divide**

**dividend**

**divisor**

**factor**

**partition**

**quotient**

## Vocabulary Check

Choose the vocabulary word that completes each sentence.

1. \_\_\_\_\_?\_\_\_\_\_ means to separate a number into equal groups, to find the number of groups, or the number in each group.
2. The number to be divided is the \_\_\_\_\_?\_\_\_\_\_.
3. A \_\_\_\_\_?\_\_\_\_\_ is a number that is multiplied by another number.
4. The number by which the dividend is divided is called the \_\_\_\_\_?\_\_\_\_\_.
5. The \_\_\_\_\_?\_\_\_\_\_ is the answer to a division problem.
6. To \_\_\_\_\_?\_\_\_\_\_ means to divide or share equally among all groups.

# Multi-Part Lesson Review

Lesson 1

## Multiplication and Division Facts for 2 and 3

### Multiply and Divide by 2 (Lessons 1A and 1B)

**Multiply.**

$$\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 4 \\ \hline \end{array}$$

**10.** There are 9 birds. Each has 2 legs. How many legs are there in all?

**11.** There is one dog. How many ears in all?

**Divide. Write a related fact.**

$$\begin{array}{r} \overline{) 212} \\ \hline \end{array}$$

$$\begin{array}{r} \overline{) 214} \\ \hline \end{array}$$

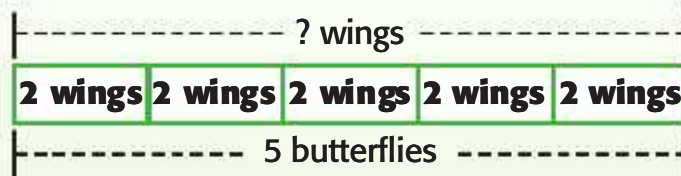
**14.**  $16 \div 2$

**15.**  $20 \div 2$

**16. Measurement** Zoe and Koko will equally share an 18-inch long piece of paper. How long will each piece be?

#### EXAMPLE 1

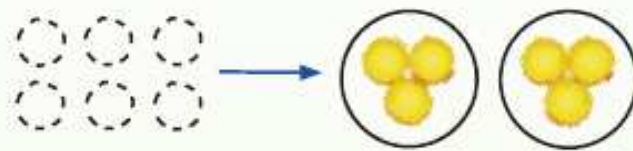
**How many wings are there on 5 butterflies?**



$$5 \times 2 = 10 \text{ wings altogether.}$$

#### EXAMPLE 2

**Maros will share 6 dog biscuits between his 2 dogs. How many biscuits will each dog get?**



$$6 \div 2 = 3$$

Each dog will get 3 biscuits.

### Multiply and Divide by 3 (Lessons 1D and 1E)

**Multiply or divide.**

**17.**  $3 \times 8$

**18.**  $9 \times 3$

**19.**  $6 \times 3$

**20.**  $12 \div 3$

**21.**  $3 \overline{) 3}$

**22.**  $3 \overline{) 30}$

**23.** There are 4 trees with 3 rabbits under each tree. Two rabbits hop away. How many are left?

**24.** A van holds 6 people. How many vans are needed for 18 people?

#### EXAMPLE 3

**Lisa is 27 years old. She is 3 times older than her niece. How old is her niece?**

Find  $27 \div 3$ .

Use related facts to divide.

$$27 \div 3 = \blacksquare$$

$$3 \times \blacksquare = 27$$

THINK 3 times what number equals 27?

$$3 \times 9 = 27$$

So,  $27 \div 3 = 9$  or  $3 \overline{) 27} \begin{array}{r} 9 \end{array}$ .

## Problem-Solving Strategy: Work Backward (Lesson 1F)

Solve. Use the *work backward* strategy.

- 25.** Leanne gave away 14 apples. She now has the apples shown. How many apples did she start with?



- 26.** Some of the numbers from one row of Miss Smith's multiplication chart are lost.  
 \_\_\_\_, \_\_\_\_, \_\_\_\_, 21, 24, \_\_\_\_, 30  
 In order, which numbers is she missing?

### EXAMPLE 4

**Three is subtracted from a number. The difference is multiplied by 2. Then, 4 is added to the product. Finally, 9 is subtracted to give a difference of 9. What is the number?**

Work backward from the answer.

$$9 + 9 = 18$$

$$18 - 4 = 14$$

$$14 \div 2 = 7$$

$$7 + 3 = 10$$

The starting number is 10.

## Lesson 2

## Multiplication and Division Facts for 5 and 10

### Multiply and Divide by 5 (Lessons 2A and 2B)

Multiply or divide.

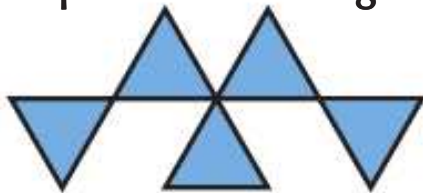
**27.**  $5 \times 5$

**28.**  $7 \times 5$

**29.**  $25 \div 5$

**30.**  $5 \overline{)50}$

- 31.** How many triangles did Bob use if he repeated the design 3 times?



- 32.** Each new student that comes to school during the year makes a handprint on the wall with paint. How many fingers are there?



### EXAMPLE 5

**Each day, Xavier saves the nickel he gets as change from his lunch money. How many nickels will he use if he wants to buy ice cream for 20¢?**

Find  $20 \div 5$ .

Use repeated subtraction.

①	②	③	④
$20$	$15$	$10$	$5$
$-5$	$-5$	$-5$	$-5$
$\hline 15$	$\hline 10$	$\hline 5$	$\hline 0$

There are 4 groups of 5.  $20 \div 5 = 4$

So, Xavier will use 4 nickels.

**Multiply and Divide by 10** (Lessons 2C and 2D)

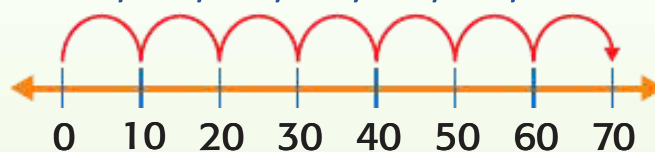
**Multiply or divide.**

33.  $10 \times 5$                       34.  $10 \times 4$   
 35.  $10 \overline{)60}$                       36.  $10 \overline{)10}$   
 37. There are 40 baskets of grapes on store shelves. If there are 10 baskets on each shelf, how many shelves are there?  
 38. Curtis used 9 dimes to buy a drink. How much did he spend?

**EXAMPLE 6**

Find  $7 \times 10$ .  
 Use the pattern of counting by 10s.

**Read:** 10, 20, 30, 40, 50, 60, 70



So,  $7 \times 10 = 70$ .

**Lesson 3**

**Multiply and Divide With 0 and 1**

**Problem-Solving Investigation: Choose a Strategy** (Lesson 3A)

39. Benito had \$20 in the bank. He took out \$8 and later put back \$6. How much money does he have in the bank now?  
 40. Of the 48 balls that sold, 2 times as many tennis balls were sold as soccer balls. How many soccer balls were sold?

**EXAMPLE 7**

**Samir has \$25. Does he have enough money to purchase 6 toy boats that cost \$5 each?**

Find the total cost of the toy boats.

$$6 \times \$5 = \$30$$

Since  $\$25 < \$30$ , he does not have enough money.

**Multiply and Divide with 0 and 1** (Lessons 3B and 3C)

**Multiply or divide.**

41.  $5 \times 0$                       42.  $1 \times 9$   
 43.  $0 \div 8$                       44.  $1 \overline{)2}$   
 45. Gisela gave 8 gifts to her friends. She gave each friend 1 gift. How many friends did Gisela give a gift to?

**EXAMPLE 8**

**Terry did 4 pages of homework in 4 nights. He did the same number of pages each night. How many pages did he do each night?**

Find  $4 \div 4$ .

$4 \text{ pages} \div 4 \text{ nights} = 1 \text{ page}$   
 So,  $4 \div 4 = 1$  page each night.



# Practice Chapter Test

Tell whether each statement is *true* or *false*.

- When you divide any number by 1, the quotient is that number.
- Repeated subtraction can help you solve a division problem.

**Multiply.**

$$\begin{array}{r} 3. \quad 1 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 9 \\ \times 5 \\ \hline \end{array}$$

**Algebra** Find each missing factor.

$$5. \quad 7 \times \blacksquare = 35$$

$$6. \quad \blacksquare \times 5 = 40$$

$$7. \quad 10 \times \blacksquare = 80$$

$$8. \quad \blacksquare \times 9 = 90$$

**Divide. Write a related fact.**

$$9. \quad 5 \overline{)30}$$

$$10. \quad 5 \overline{)25}$$

$$11. \quad 0 \div 7$$

$$12. \quad 10 \div 1$$

**13. MULTIPLE CHOICE** Ryder did this

division problem.  
 $70 \div 10 = 7$

Which problem could he do to check his answer?

**A.**  $70 + 10$

**C.**  $10 + 7$

**B.**  $10 \times 7$

**D.**  $10 \div 70$

**14.** Five gardeners each picked the number of tomatoes shown. How many tomatoes were picked in all?



**15.** Kareem gave 25 football cards to Cindy, 13 to Naomi, and 14 to Brad. Kareem now has half the cards he started with. How many cards did he start with?

**16. BAR DIAGRAM** The movie theater has 6 rows of seats. Each row has 10 people. How many people are in the theater? Use a bar diagram to solve.

**17.** Five boys find 5 fishing poles. Do they have enough poles so that each boy has a pole? Solve. Write a number sentence.

**18.** A scout group sold boxes of popcorn for \$10. How much money did Javier raise?

Scout	Money Raised						Total
Griffen	★	★	★	★	★	★	\$70
Bartolo	★	★	★	★			\$40
Javier	★	★	★	★	★	★	■
key: ★ = \$10							

**19. MULTIPLE CHOICE** Twenty-seven students will divide into equal groups to play a game. Which problem below will give them equal groups?

**F.**  $27 \div 3$

**H.**  $27 \div 10$

**G.**  $27 \div 5$

**I.**  $27 \div 2$

**20. ? WRITE MATH** Can the product of a multiplication problem ever end in 2 when you are multiplying by 10? Explain.



# Test Practice

## TEST EXAMPLE

Alma wants to place 15 star stickers in 3 equal rows. How many stickers will be in each row?

- A. 2                      C. 5  
B. 3                      D. 10

### Read the Question

You need to find the number of star stickers that will be in each row.

### Solve the Question

Draw a model to help you understand the question. Show 15 star stickers in 3 equal rows.



There are 5 star stickers in each row. So, the answer is C.

## TEST-TAKING TIP

Multiplication and division are inverse operations so thinking of a related fact can help you solve a problem.

Read each question. Then fill in the correct answer on the answer sheet provided by your teacher or on a separate sheet of paper.

1. Daniel has 40 baseball cards. He puts the cards in piles of 8. How many piles does he make?

- A. 2                      C. 5  
B. 4                      D. 8

2. What number can 8 be divided by to give the answer 8?

- F. 0                      H. 8  
G. 1                      I. 16

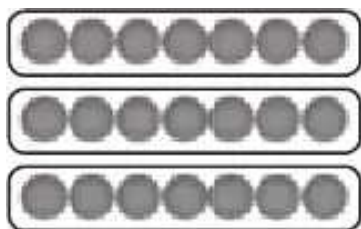
3. What does  $2 \times 5$  mean?

- A.  $5 + 5$
- B.  $2 + 5 + 2 + 5 + 2$
- C.  $5 + 5 + 5 + 5 + 5$
- D.  $2 + 2$

4. Gabe works at a car wash 6 hours a day. It takes Gabe 1 hour to wash one car. Which number sentence shows the number of cars he washes in 1 day?

- F.  $6 - 6 = 0$       H.  $6 \times 1 = 6$
- G.  $6 \times 0 = 0$       I.  $6 + 1 = 7$

5. Which number sentence is modeled by the array?



- A.  $24 \div 8 = 3$       C.  $18 \div 3 = 6$
- B.  $21 \div 3 = 7$       D.  $21 \div 4 = 5$

6. Which number will make the number sentence true?

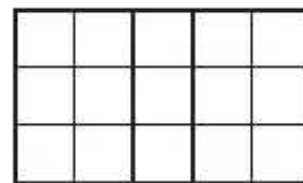
$$\blacksquare \times 3 = 0$$

- F. 0                      H. 3
- G. 1                      I. 4

7. The product of 5 and another factor is 50. What is the missing factor?

- A. 45                      C. 9
- B. 10                      D. 5

8. Which number sentence is modeled by the figure below?



- F.  $3 + 3 + 3 = 9$
- G.  $4 \times 5 = 20$
- H.  $3 \times 6 = 18$
- I.  $3 \times 5 = 15$

9. Clara has 8 packs of gum. Each pack contains 5 pieces of gum. If Clara chews 3 pieces, how many pieces does she have left?

- A. 37                      C. 13
- B. 32                      D. 8

10. Which problem could Leo do to check  $60 \div 10 = 6$ ?

- F.  $10 + 6 = \blacksquare$       H.  $10 \times 6 = \blacksquare$
- G.  $10 - 6 = \blacksquare$       I.  $10 \div 6 = \blacksquare$

NEED EXTRA HELP?										
If You Missed Question ... Go to Chapter-Lesson ...	1	2	3	4	5	6	7	8	9	10
For help with ...	SPI 2.6	SPI 2.6	SPI 1.5	SPI 3.2	SPI 3.2	SPI 3.3	SPI 3.3	SPI 2.5	SPI 2.6	SPI 2.8