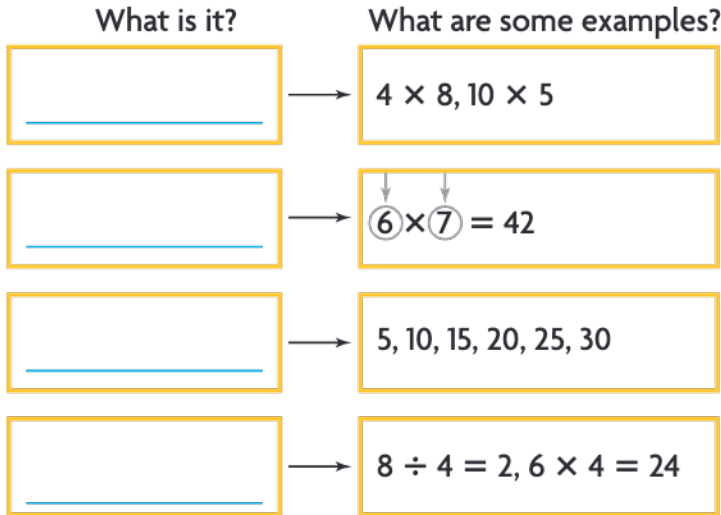


Visualize It

Complete the flow map by using the words with a ✓.



Connect to Vocabulary

Review Words

- ✓ equation
- even
- ✓ factor
- multiple
- odd
- ✓ pattern
- product
- rule

Preview Words

- divisible
- ✓ expression

Understand Vocabulary

Read the definition. Write the preview word or review word that matches it.

- an ordered set of numbers or objects in which the order helps you predict what will come next
- describes the way a pattern is made
- when a number can be divided evenly by a counting number



Name _____

Multiplication Comparisons

I Can use multiplication to compare amounts using models and equations.

Florida's B.E.S.T.

- Number Sense & Operations 3.NSO.2.2
- Algebraic Reasoning 3.AR.1.2
- Mathematical Thinking & Reasoning MTR.2.1, MTR.3.1, MTR.4.1

You can use multiplication and a bar model to compare amounts.



3 times as many as 5.

$$3 \times 5 \leftarrow \text{multiplication expressions} \rightarrow 5 \times 3$$



5 times as many as 3.

An **expression** is part of an equation that has numbers and operation signs but does not have an equal sign.



UNLOCK the Problem Real World

Carly has 9 pennies. Jun has 4 times as much money as Carly. How can you use multiplication to show how much money Jun has compared to Carly?

Draw a bar model and write an expression.



Use the model to write an expression.

$$\underline{\quad} \times \underline{\quad}$$

Describe the expression as a comparison.

 times as much as

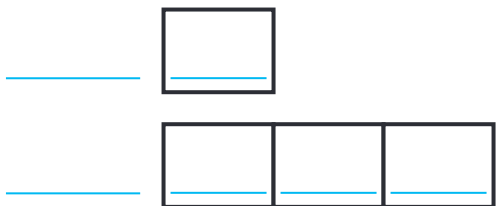
Example

Amelia made 8 cups of lemonade. Nathan made 4×8 cups of lemonade. They each wrote a comparison to describe the expression 4×8 .

Amelia wrote: 4 times as much as 8 Nathan wrote: 4 more than 8

Who described the expression correctly? Explain.

1. There are 8 students in the art club. There are 3 times as many students in chorus. Draw a bar model and write a multiplication expression to represent the number of students in chorus compared to the art club.



_____ × _____



TR 2.1 Demonstrate learning in multiple ways.

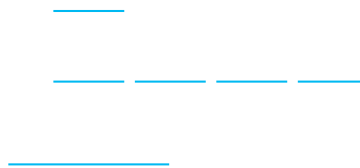
Explain how bar models help you describe the multiplication.

Draw a bar model and write a multiplication expression to represent the comparison.

2. 6 times as many as 2



3. 4 times as much as 11



4. 3 times as much as 9



5. 8 times as many as 6



Describe the multiplication expression as a comparison.

6. 12×2

_____ times as many as _____

7. 8×4

_____ times as much as _____

8. 5×7

_____ times as much as _____

9. 6×9

_____ times as many as _____

On Your Own

10. Use the picture at the right. John's big dog eats 10 times as much food as his cat eats. Write a multiplication expression to represent the amount of food that John's dog eats compared to his cat.

11. Write a problem about pet food that could be represented using the expression 4×3 .

12. Nando has 4 goldfish. Jill has 3 goldfish. Cooper has 2 times as many goldfish as Nando and Jill have combined. Write an expression that compares the number of goldfish that Cooper has with the number of goldfish that Nando and Jill have in all.

13. How would the bar model that represents *5 times as much as 11* look different from the bar model that represents *11 as the sum of 5 and another number*?



Show the Math

Demonstrate Your Thinking

Multiplication Comparisons

Go Online

Interactive Examples

Draw a bar model and write a multiplication expression to represent the comparison.

1. 4 times as many as 7

2. 5 times as many as 3

Describe the multiplication expression as a comparison.

- 3.
- 7×6

_____ times as many as _____

- 4.
- 3×8

_____ times as many as _____

- 5.
- 8×5

_____ times as many as _____

- 6.
- 9×12

_____ times as many as _____

Problem Solving

Use information in the pictures for Problems 7–9.



7. The toy store has 4 times as many whistles as yo-yos. Write a multiplication expression to represent the number of whistles compared to yo-yos.

8. Write a comparison statement about the wind-up ducks that could be described using the expression
- 11×5
- .

9. The toy store has 8 times as many soccer balls as spinning tops. Write a multiplication expression to represent the number of soccer balls compared to spinning tops.

Lesson Check

Fill in the bubble completely to show your answer.

10. Ela sells 5 boxes of greeting cards. Sam sells 3 times as many boxes as Ela. Which expression represents the number of boxes that Sam sells compared to Ela?
- (A) $5 \times 5 \times 5$
(B) $5 + 3$
(C) $5 - 3$
(D) 3×5
11. Kaitlin collects 6 bottle caps for a prize. Jin collects 4 times as many bottle caps as Kaitlin. Which expression represents the number of bottle caps that Jin collects compared to Kaitlin?
- (A) $6 + 4$
(B) $6 \times 6 \times 6 \times 6$
(C) 4×6
(D) $4 \times 4 \times 4 \times 4 \times 4 \times 4$
12. Farrah has 18 crayons. John's crayons can be represented by 2×18 . Which comparison statement describes the expression?
- (A) 18 more than 2
(B) 2 times as many as 18
(C) 2 more than 18
(D) 2 fewer than 18
13. Justin writes the multiplication expression 3×9 . Which comparison statement describes the expression that Justin wrote?
- (A) 3 more than 9
(B) 9 more than 3
(C) 3 times as many as 9
(D) 3 fewer than 9

Spiral Review

14. Donte has 3 math books and 5 science books. Ramya has 4 more books than Donte. How many books does Ramya have?
- (A) 12
(B) 8
(C) 4
(D) 2
15. A scientist collected data on rainfall for 48 months. For how many years did she collect the data?
- (A) 12
(B) 4
(C) 3
(D) 2

Name _____

Identify, Create and Extend Patterns

I Can describe a pattern in a table in different ways.

UNLOCK the Problem Real World

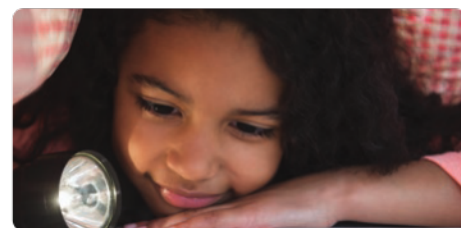
The outdoor club is planning a camping trip. Each camper will need a flashlight. One flashlight uses 4 batteries. How many batteries are needed for 8 flashlights?

Describe a pattern in a table. Then find the eighth number in the pattern.

Flashlights	1	2	3	4	5	6	7	8
Batteries	4	8	12	16	20	24	28	■

Think: Count by 1s.

Think: Count by 4s.

**Florida's B.E.S.T.**

- Algebraic Reasoning 3.AR.3.3
- Mathematical Thinking & Reasoning MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.7.1

One Way Describe a pattern across the rows.

STEP 1 Look for a pattern to complete the table. As you look across the rows, you can see that the number of batteries increases by 4 for each flashlight.

So, for every flashlight, add _____ batteries.

STEP 2 Use the pattern to find the number of batteries in 8 flashlights.

Add _____ to 28 batteries. $28 + 4 = \underline{\hspace{2cm}}$

So, _____ batteries are needed for 8 flashlights.

Common Error

Check that your pattern will work for all the numbers in the table.

Math Talk

MTR 2.1 Demonstrate understanding in multiple ways.

What is another way to write *third*, *seventh*, and *tenth*?

Another Way Describe a pattern in the columns.

STEP 1 Look for a pattern by comparing the columns in the table. You can multiply the number of flashlights by 4 to find the number of batteries that are needed.

STEP 2 Use the pattern to find how many batteries are needed for 8 flashlights.

$8 \times 4 = \underline{\hspace{2cm}}$

Remember

first	1 st
second	2 nd
third	3 rd
fourth	4 th
fifth	5 th

Try This! Describe a pattern. Then complete the table.

The campers need 4 packs of batteries. If there are 8 batteries in each pack, how many batteries will be in 4 packs?

Packs of Batteries	Number of Batteries
1	8
2	16
3	
4	

Use addition.

Describe a pattern.

Add _____ batteries for each pack.

So, there will be _____ batteries in 5 packs.

Use multiplication.

Describe a pattern.

Multiply the number of packs of batteries by _____.

Divide! Use division to describe a pattern. Then complete the table.

Describe a pattern.

Divide the number of campers by _____ to find the number of tents.

Tents	1		5		9
Campers	5	15	25	35	45

Share and Show



1. Describe a pattern shown in the table. What is the fourth number in the pattern?

Packs of Batteries	1	2	3	4
Cost	3	6	9	

Describe a pattern in the table. Then complete the table.

2.

Lanterns	Tents
4	2
6	3
8	4
10	5
12	
14	

3.

Adults	1	2	3	4	5
Campers	6	12	18		



TR 3.1 Complete tasks with mathematical fluency.

Describe how you use your description for a pattern to complete a table.

On Your Own

Describe a pattern in the table. Then complete the table.

4.

Miles Hiked	4	8	12	16	20
Hours	1	2	3		

5.

Cabins	3	4	5	6	7
Campers	27	36	45		

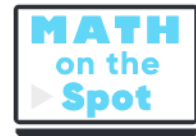
6.

Cabins	Beds
1	5
2	10
3	
4	20
5	
6	

7.

Adults	Students
2	12
3	18
4	
5	30
6	
7	

8. Students made a craft project at camp. They used 2 small pinecone patterns and 1 large pinecone pattern. Complete the table to find how many patterns were used for the different numbers of projects.

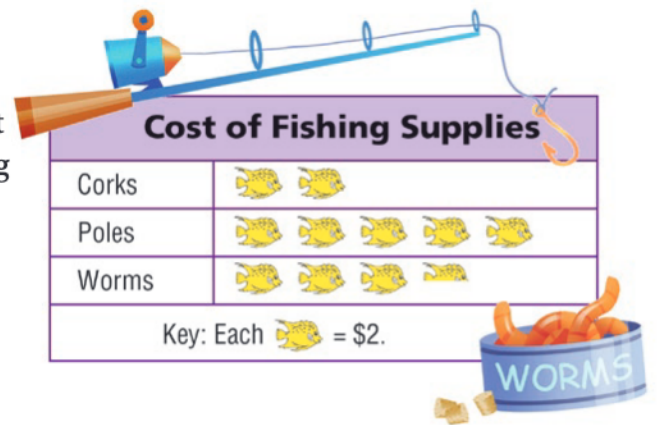


Projects	1	2	3										
Small Pattern	2												
Large Pattern	1												

9. Create a pattern. Start at 3 and add 4 again and again. What will be the 5th number in the pattern?
-
10. Create a pattern. Start at 24 and divide by 2 three times in a row. What will be the last number in the pattern?
-

Problem Solving · Applications

MTR Use the pictograph for Problems 11–13.



11. Create a pattern to show the cost of purchasing one fishing pole, two fishing poles, and so on. Write the first 5 numbers. Which number tells you the cost of 3 fishing poles?
-

12. Nura bought 1 fishing pole, 2 corks, and 1 carton of worms. What was the total cost?
-

13. **WRITE** *Math* Ryan bought 8 corks. Explain how you can use a pattern to find the cost. What is the cost of 8 corks?
-
-

14. The cost to rent a raft is \$7 per person. A raft can hold up to 6 people. There is a \$3 launch fee per raft. What is the total cost for a group of 6? Explain.
-

15. A group of students and adults are going on a field trip in vans. In each van, there will be 8 students and 2 adults. How many people will be in 11 vans?
-

16. Complete the table. Amir said a rule for the pattern shown in this table is “Multiply by 4.” Is he correct? Explain how you know your answer is reasonable.

Cans	2	3	4		6
Peaches	8	12		20	

Identify, Create and Extend Patterns

Go Online

Interactive Examples

Describe a pattern for the table. Then complete the table.

1.

Pans	1	2	3	4	5
Muffins	6	12	18	24	30

Add 6 muffins for each pan.**Multiply the number of pans by 6.**

2.

Wagons	2	3	4	5	6
Wheels	8	12	16		

3.

Flowers	14	21	28	35	42
Vases	2		4		6

4.

Spiders	1	2	3	4	5
Legs	8		24		40

Problem Solving

5. Caleb buys 5 cartons of yogurt. Each carton has 8 yogurt cups. How many yogurt cups does Caleb buy?

6. Latoya bought 12 packages of pencils. Each package has 6 pencils. How many pencils did Latoya buy?

7.  **WRITE** *Math* How does finding a pattern help you complete a table?

Lesson Check

8. What is the fifth term in the pattern?

Tables	1	2	3	4	5
Chairs	5	10	15	20	■

9. What number completes this table?

Butterflies	3	4	5	6	7
Wings	12	16	20	■	28

Spiral Review

10. Jennilee buys 7 packs of crayons. There are 6 crayons in each pack. How many crayons does Jennilee buy?

11. Maverick has 11 books of circus tickets. Each book has 5 tickets. How many tickets does Maverick have?

12. Bailey walked his dog 2 times each day for 9 days. How many times did Bailey walk his dog?

13. Drew's Tree Company delivers pear trees in groups of 4. Yesterday, the company delivered 8 groups of pear trees. How many pear trees were delivered?

Name _____

Determine Multiples

I Can find multiples.

Florida's B.E.S.T.

- Algebraic Reasoning 3.AR.3.2
- Mathematical Thinking & Reasoning
MTR.2.1, MTR.4.1, MTR.5.1, MTR.6.1



UNLOCK the Problem Real World

Raul is making bread. He needs 3 cups of flour for each loaf of bread. Which of these bags should he buy so that he can use all the flour to make bread?



Math Idea

To find multiples of 3, multiply 3 by any whole number.

$3 \times 1 = 3$, so 3 is a multiple of 3.

$3 \times 9 = 27$, so 27 is also a multiple of 3.

Determine which bag holds a number of cups that is a multiple of 3.

- A.** Decide whether or not 3 multiplied with a whole number equals each number. Tell how you know.

Can 3 multiplied with a whole number equal the product 10?

Can 3 multiplied with a whole number equal the product 15?

Can 3 multiplied with a whole number equal the product 25?

Can 3 multiplied with a whole number equal the product 36?

- B.** Identify the choices that are multiples of 3.

Since _____, can each be written as 3 multiplied with a whole number, the numbers _____ are multiples of 3.

- C.** Solve the problem.

Raul should buy the bags with _____ cups.

Remember

When a factor is multiplied by another factor, the product is a multiple of both factors.

Divide! Find multiples using division.

You can use division to decide if one number is a multiple of another number. Is 20 a multiple of 5? You know $20 \div 5 = 4$. Write the related multiplication fact: $\underline{\quad} \times \underline{\quad} = 20$. So 20 is a multiple of both 5 and 4.

Try Another Problem

Raul bakes 4 loaves at a time. How many loaves will he bake if he makes 1 to 5 batches?

Find the first five multiples of 4.

A. Multiply 4 by each number of times he bakes a batch.

1 batch: $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

2 batches: $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

3 batches: $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

4 batches: $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

5 batches: $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

C. If Raul bakes 1 to 5 batches, he will make $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, and $\underline{\quad}$ loaves of bread.

Math
Talk

TR Use patterns and structure.

How are factors and multiples related to each other?

Math
Talk

TR Engage in discussions on mathematical thinking.

How does division help you determine if one number is a multiple of another?

Share and Show



1. Circle the multiples of 7.

21 33 42 56

✓ 2. Write the first five multiples of 11.

✓ 3. The number on Mayang's parking space is a multiple of 6. Which of these could be the number on her parking space?

18 26 38 54

On Your Own

4. **MTR** There are 10 dimes in a dollar. Which stacks of dimes have whole dollar amounts as the total? Show or explain how you found your answer.



70



65



40



24

5. Which of the following are multiples of 9?
63 79 81 99
6. Which of the following are multiples of 12?
144 84 96 102

Find the first five multiples of the number. Write multiplication equations to show that they are multiples.

7. 3: _____

8. 5: _____

9. Complete the division fact *if you can*. Use what you find out to decide if each number is a multiple of 8.

$16 \div 8 = \underline{\quad}$ Is 16 a multiple of 8? $\underline{\quad}$

$26 \div 8 = \underline{\quad}$ Is 26 a multiple of 8? $\underline{\quad}$

$32 \div 8 = \underline{\quad}$ Is 32 a multiple of 8? $\underline{\quad}$

$42 \div 8 = \underline{\quad}$ Is 42 a multiple of 8? $\underline{\quad}$

10. **MTR** Bagels are sold in packages of 6. How many bagels are in 1 to 5 packages?

Determine Multiples

Go Online

Interactive Examples

1. Which of the following are multiples of 7?
Select all that apply.

14 27 36 49

2. Which of the following are multiples of 3?
Select all that apply.

15 24 29 33

3. **MTR** There are 2 cups in a pint. Which containers hold whole numbers of pints? Show or explain how you found your answer.



Find the first four multiples of the number. Write multiplication equations to show that they are multiples.

4. 12: _____

5. 9: _____

6. 1: _____

7. **MTR** Biscuits are sold in cans of 8. How many biscuits are in 1 to 5 cans?

8. Find the first 3 multiples of 6. Write division equations to show that they are multiples.

9. Karl says that 42 is a multiple of both 6 and 7. Is he correct? Explain.

Lesson Check

Fill in the bubble completely to show your answer.

10. Which number is a multiple of 7?

(A) 17

(B) 24

(C) 36

(D) 49

11. Which number is not a multiple of 12?

(A) 48

(B) 96

(C) 121

(D) 144

12. Which of the following are multiples of 2?

(A) 8

(C) 29

(E) 55

(B) 14

(D) 38

13. A toy robot requires 4 batteries. How many batteries are needed for 1 to 5 robots?

Spiral Review

Find the sum.

14.
$$\begin{array}{r} 4,325 \\ + 1,984 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 2,907 \\ + 6,438 \\ \hline \end{array}$$

Find the difference.

16.
$$\begin{array}{r} 5,716 \\ - 3,940 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 7,004 \\ - 6,928 \\ \hline \end{array}$$

Name _____

Determine Even or Odd Using Divisibility Rules

I Can recognize odd and even numbers.

Florida's B.E.S.T.

- Algebraic Reasoning 3.AR.3.1, 3.AR.3.2
- Mathematical Thinking & Reasoning MTR.5.1, MTR.6.1



UNLOCK the Problem Real World

Vannara and her sister choose pairs of factors and guess if the products of their numbers are odd or even. What is the best guess for Vannara—will most of the products be odd or even?

Activity Find the product. Then determine if the product is even or odd.

Factors	Example	Product	Odd or Even?
even \times even	8×4		
even \times odd	2×7		
odd \times odd	9×5		
odd \times even	3×6		

_____ out of four possibilities in the table result in a product that is an _____ number. So, Vannara should guess that most of the products will be _____.

- What if Vannara chose 58 as a factor and her sister chose 67? Would the product be an odd or an even number? Explain your answer:

Remember

Even numbers end in 0, 2, 4, 6, or 8.
Odd numbers end in 1, 3, 5, 7, or 9.



Try This! Tell if the product will be *odd* or *even*.

4×16

31×7

8×45

59×2

26×3

9×51

Divisibility Rules

A number is **divisible** by another number if the number is a counting number and the number can be divided evenly. Some numbers have divisibility rules.

A number is divisible by 2 if the ones digit is 0, 2, 4, 6, or 8.

Divisible by 2:

64 98 412 940 576

Not divisible by 2:

63 97 411 939 575

- What do you notice about the numbers divisible by 2?
-

Try This! Circle the numbers divisible by 2.

445

867

428

499

210

516

321

934

Share and Show



Tell if the product will be *odd* or *even*.

1. even \times odd
- ✓ 2. odd \times odd
3. even \times even

Math
Talk

TR Use patterns and structure.
5.1

What conclusion can you draw when the product of two numbers is an odd number?

Circle the numbers divisible by 2.

✓ 4. 47

5. 598

6. 997

7. 676

8. 794

Use the divisibility rule to tell if the number is *even* or *odd*.

9. 39

10. 472

11. 500

12. 934

13. 281

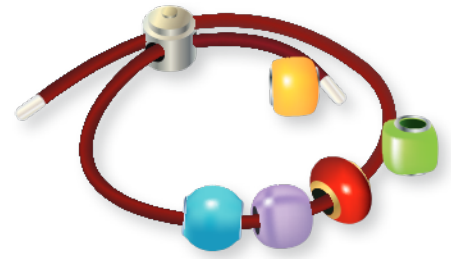
14. 683

15. 1,000

16. 645

17. 356

18. 207

On Your Own

19. Ola uses some beads to make 11 bracelets. She uses 5 beads on each bracelet. Will the number of beads Ola uses be an even or an odd number? Explain.

20. Noah wrote the number 247. Bryson wrote the number 332. Both Noah and Bryson say their numbers are divisible by 2. Describe and correct the error.

21. Vanessa is thinking of an even product between 40 and 50. One of the factors is even and one of the factors is odd. Both factors are 1-digit numbers. What is Vanessa's number? Explain how you found it.



22. The price tags on the two items Man Kai wants to buy are 50¢ and 25¢. Will he pay for the two items with an even or an odd number of quarters? Explain.

Problem Solving • Applications

Fill in the bubble for the correct answer choice.

23. Edwige is playing an odd and even game with cards. She turns over a card, and the number 25 shows. Which is true about 25?
- (A) It is even because there is a 2 in the tens place.
 - (B) It is even because there is a 5 in the ones place.
 - (C) It is odd because there is a 2 in the tens place.
 - (D) It is odd because there is a 5 in the ones place.
24. Which of the following groups of numbers includes an odd number?
- (A) 124, 556, 670
 - (B) 218, 844, 385
 - (C) 420, 774, 988
 - (D) 512, 230, 854
25. Jim is thinking of a mystery number between 50 and 70. His number is even, and the sum of the digits is 9. What is Jim's number?
- (A) 45
 - (B) 72
 - (C) 54
 - (D) 63
26. Which set of numbers contains all odd numbers?
- (A) 238, 239, 240
 - (B) 591, 513, 510
 - (C) 423, 429, 431
 - (D) 156, 170, 192



Determine Even or Odd Using Divisibility Rules

Go Online

Interactive Examples

Tell if the product will be *odd* or *even*.

1. 3×41 _____

2. 56×9 _____

3. 64×8 _____

4. 3×50 _____

Circle the numbers divisible by 2.

5. 113

6. 572

7. 488

8. 326

9. 631

10. 234

Problem Solving

11. Kenji writes the numbers 230 and 607. He says that both numbers are divisible by 2. Is Kenji correct? Explain.

12. Kara uses some buttons to decorate 6 puppets. She uses 8 buttons on each puppet. Will the number of buttons Kara uses be an even or an odd number? Explain.

13. Miguel has a group of 17 red counters and a group of 13 yellow counters. He arranges the counters into stacks of 5. Does he have an odd or even number of stacks? Explain.

Lesson Check

Fill in the bubble completely to show your answer.

14. Dale tosses three number cubes shown below.



Which is an even number Dale can make from the numbers?

- (A) 536
- (B) 635
- (C) 563
- (D) 365

15. Gerard tosses four number cubes shown below.



Which set of numbers that Gerard makes are all odd?

- (A) 216, 619, 926
- (B) 169, 921, 269
- (C) 692, 961, 219
- (D) 926, 261, 692

16. A mystery number is odd and has 2 digits. The sum of the digits is 11. The digit in the tens place is between 0 and 3. What is the mystery number?

- (A) 29
- (B) 38
- (C) 47
- (D) 56

17. A mystery number is even and has 2 digits. The difference between the digits is 3. The digit in the ones place is between 0 and 4. What is the mystery number?

- (A) 30
- (B) 63
- (C) 96
- (D) 41

Spiral Review

Write the numbers in standard form.

18. four thousand, twenty-seven

19. five thousand, nine hundred two

20. six thousand, one

21. eight thousand, forty

Name _____

Find Unknown Numbers

I Can use an array or a multiplication table to find an unknown factor or product.

Florida's B.E.S.T.

- Algebraic Reasoning 3.AR.2.3, 3.AR.2.1
- Mathematical Thinking & Reasoning MTR.1.1, MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1



UNLOCK the Problem Real World

Tanisha plans to invite 24 people to a picnic. The invitations come in packs of 8. How many packs of invitations does Tanisha need to buy?

A symbol or letter can stand for an unknown number. You can write the equation, $n \times 8 = 24$, to find how many packs of invitations Tanisha needs. Replace the letter n with a number that makes the equation true.

One way Use an array.

- Show an array of 24 tiles with 8 tiles in each row by completing the drawing.



$$\begin{array}{ccccccc}
 n & \times & 8 & = & 24 \\
 \uparrow & & \uparrow & & \uparrow \\
 \text{factor} & & \text{factor} & & \text{product} \\
 \text{number of} & & \text{number in} & & \text{total} \\
 \text{rows} & & \text{each row} & & \text{number}
 \end{array}$$

- Count how many rows of 8 tiles there are.

Think: What number times 8 equals 24?

There are _____ rows of 8 tiles. The unknown factor is _____. $n =$ _____

$$\underline{\quad} \times 8 = 24 \quad \text{Check.}$$

$$\underline{\quad} = 24 \quad \checkmark \quad \text{The equation is true.}$$

So, Tanisha needs _____ packs of invitations.

- How many people is Tanisha

inviting? _____

- How many invitations are in

1 pack? _____



Math Talk

MTR 3.1 Complete tasks with mathematical fluency.

Explain how the array represents the problem. How do the factors relate to the array?

Another Way Use a multiplication table.

$$3 \times 8 = \square$$

Think: The symbol, \square , stands for the unknown product.

Find the product 3×8 where row 3 and column 8 meet.

The unknown product is _____.

$$\square = \underline{\hspace{2cm}}$$

$$3 \times 8 = \underline{\hspace{2cm}} \quad \text{Check.}$$

$$24 = \underline{\hspace{2cm}} \quad \checkmark \text{ The equation is true.}$$

×	1	2	3	4	5	6	7	8	9	1	11	12
1	1	2	3	4	5	6	7	8	9	1	11	12
2	2	4	6	8	1	12	14	16	18	2	22	24
3	3	6	9	12	15	18	21	24	27	3	33	36
4	4	8	12	16	2	24	28	32	36	4	44	48
5	5	1	15	2	25	3	35	4	45	5	55	6
6	6	12	18	24	3	36	42	48	54	6	66	72
7	7	14	21	28	35	42	49	56	63	7	77	84
8	8	16	24	32	4	48	56	64	72	8	88	96
9	9	18	27	36	45	54	63	72	81	9	99	1 8
1	1	2	3	4	5	6	7	8	9	1	11	12
11	11	22	33	44	55	66	77	88	99	11	121	132
12	12	24	36	48	6	72	84	96	1 8	12	132	144

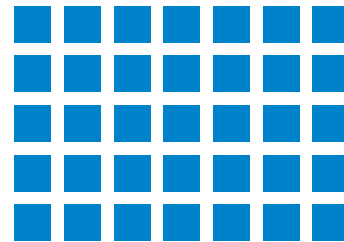
Share and Show



1. What is the unknown factor shown by this array?

$$5 \times \square = 35$$

$$\square = \underline{\hspace{2cm}}$$



Find the unknown number.

2. $d \times 3 = 33$

$$d = \underline{\hspace{2cm}}$$

3. $6 \times 5 = \triangle$

$$\triangle = \underline{\hspace{2cm}}$$

4. $c = 5 \times 4$

$$c = \underline{\hspace{2cm}}$$

5. $\square \times 2 = 14$

$$\square = \underline{\hspace{2cm}}$$

6. $b = 4 \times 9$

$$b = \underline{\hspace{2cm}}$$

7. $8 \times e = 64$

$$e = \underline{\hspace{2cm}}$$

8. $7 \times \star = 84$

$$\star = \underline{\hspace{2cm}}$$

9. $8 \times 9 = z$

$$z = \underline{\hspace{2cm}}$$

Math Talk

TR 4.1 Engage in discussions on mathematical thinking.

How do you know if you are looking for the number of rows or the number in each row when you make an array to find an unknown factor?

On Your Own

Find the unknown number.

10. $\square = 9 \times 2$

$\square = \underline{\hspace{2cm}}$

11. $28 = 4 \times m$

$m = \underline{\hspace{2cm}}$

12. $y \times 3 = 9$

$y = \underline{\hspace{2cm}}$

13. $11 \times 9 = g$

$g = \underline{\hspace{2cm}}$

14. $a = 6 \times 4$

$a = \underline{\hspace{2cm}}$

15. $7 = 7 \times n$

$n = \underline{\hspace{2cm}}$

16. $w \times 3 = 15$

$w = \underline{\hspace{2cm}}$

17. $\star = 8 \times 6$

$\star = \underline{\hspace{2cm}}$

MTR Find the unknown number.

18. $3 \times 12 = k \times 9$

$k = \underline{\hspace{2cm}}$

19. $4 \times y = 2 \times 6$

$y = \underline{\hspace{2cm}}$

20. $5 \times g = 36 - 6$

$g = \underline{\hspace{2cm}}$

21. $6 \times 4 = \square \times 3$

$\square = \underline{\hspace{2cm}}$

22. $9 \times d = 70 + 2$

$d = \underline{\hspace{2cm}}$

23. $8 \times h = 60 - 4$

$h = \underline{\hspace{2cm}}$

24. Invitations cost \$3 for a pack of 8. Lori gives the cashier \$20 to buy invitations and gets \$11 in change. How many packs of invitations does Lori buy? Explain.

25. Coz and Amelia each make a tile design with 36 tiles. Coz puts his in 4 rows. Amelia puts hers in 6 rows. How many more tiles are in each of Coz's rows than Amelia's?

Problem Solving · Applications

Use the table for Problems 26–29.

26. Tanisha needs 40 cups for the picnic.
How many packs of cups should she buy?

27. Ms. Hill buys 3 tablecloths and 2 packs of napkins. How much does she spend?

28. What if Tanisha needs 40 bowls for the picnic? Explain how to write an equation with a letter for an unknown factor to find the number of packs she should buy. Then find the unknown factor.

29. Randy needs an equal number of bowls and cups. How many packs of each will he need to buy?

30. For 30a-30e, rewrite the division equation as a multiplication equation using the same symbol for the unknown number. Use the multiplication equation to find the unknown number. 30a has been done for you.

30a. $42 \div 6 = p$

$6 \times p = 42$

$p = 7$

30b. $64 \div 8 = b$

$\underline{\hspace{1cm}} \times b = 64$

$b = \underline{\hspace{1cm}}$

30c. $16 \div 4 = ?$

$\underline{\hspace{1cm}} \times ? = \underline{\hspace{1cm}}$

$? = \underline{\hspace{1cm}}$

30d. $20 \div 4 = y$

$4 \times \underline{\hspace{1cm}} = 20$

$y = \underline{\hspace{1cm}}$

30e. $45 \div 5 = d$

$\underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = 45$

$d = \underline{\hspace{1cm}}$

Item	Number in 1 Pack	Cost
Bowls	6	\$10
Cups	8	\$3
Tablecloth	1	\$2
Napkins	36	\$2
Forks	50	\$3



Find Unknown Numbers

Go Online

Interactive Examples

Find the unknown number.

1. $n \times 3 = 12$

Think: How many groups of 3 equal 12?

$n = \underline{4}$

2. $s \times 8 = 64$

$s = \underline{\hspace{2cm}}$

3. $77 = 7 \times n$

$n = \underline{\hspace{2cm}}$

4. $y \times 2 = 18$

$y = \underline{\hspace{2cm}}$

5. $5 \times p = 60$

$p = \underline{\hspace{2cm}}$

6. $56 = 8 \times t$

$t = \underline{\hspace{2cm}}$

7. $m \times 4 = 28$

$m = \underline{\hspace{2cm}}$

8. $\star \times 1 = 9$

$\star = \underline{\hspace{2cm}}$

9. $b \times 6 = 54$

$b = \underline{\hspace{2cm}}$

10. $5 \times \blacktriangle = 40$

$\blacktriangle = \underline{\hspace{2cm}}$

11. $30 = d \times 3$

$d = \underline{\hspace{2cm}}$


12. $7 \times k = 42$

$k = \underline{\hspace{2cm}}$

Problem Solving

13. Carmen spent \$42 for 6 hats.
-
- How much did each hat cost?

14. Mark has a baking tray with 24 muffins. The muffins are arranged in 4 equal rows. How many muffins are in each row?

- 15.
- 
- WRITE**
- Math*
- Explain why it does not matter what letter or symbol is used to find an unknown number.

Lesson Check

16. What is the unknown number?

$$b \times 7 = 56$$

17. What is the unknown number shown by this array?



$$3 \times \blacksquare = 24$$

Spiral Review

18. The equation $4 \times 6 = 6 \times 4$ is an example of what property?

19. Find the product.

$$5 \times (4 \times 2)$$

20. The equation $4 \times 7 = (4 \times 3) + (4 \times 4)$ is an example of what property?

21. In a group of 10 children, each child had 2 hats. How many hats did they have?

Name _____

Solve Two-Step Multiplication Problems

Florida's B.E.S.T.

- Algebraic Reasoning 3.AR.1.2, 3.AR.3.3
- Mathematical Thinking & Reasoning MTR.2.1, MTR.4.1

I Can make a table to solve multiplication problems.



UNLOCK the Problem Real World

Scott has a stamp album. Some pages have 1 stamp on them, and other pages have 2 stamps on them. If Scott has 18 stamps, show how many different ways he could put them in the album. Use the graphic organizer below to solve the problem.



Read the Problem

What do I need to find?

What information do I need to use?

Scott has _____ stamps. Some of the pages have _____ stamp on them, and other pages have _____ stamps.

How will I use the information?

I will make a _____ showing all the different ways of arranging the stamps in the album.

Solve the Problem

Make a table to show the numbers of pages with 1 stamp and with 2 stamps. Each row must equal _____, the total number of stamps.

Pages with 2 Stamps	Pages with 1 Stamp	Total Stamps
8	2	18
7	4	18
6	6	18
5		18
	10	18
3	12	
2		

So, there are _____ different ways.

1. What number patterns do you see in the table?

Go Online For more help

Share and Show

Math
Board

1. Aaron's mother is making lemonade. For each pitcher, she uses 1 cup of lemon juice, 1 cup of sugar, and 6 cups of water. What is the total number of cups of ingredients she will use to make 5 pitchers of lemonade?

First, make a table to show the number of cups of lemon juice, sugar, and water that are in 1 pitcher of lemonade.

Next, find the number of cups of lemon juice, sugar, and water needed for each pitcher of lemonade.

Last, use the table to solve the problem.

Number of Pitchers	1	2	3		5
Cups of Lemon Juice	1		3		
Cups of Sugar	1	2			
Cups of Water	6	12		24	
Total Number of Cups of Ingredients	8				

So, in 5 pitchers of lemonade, there are _____ cups of lemon juice, _____ cups of sugar, and _____ cups of water.

This makes a total of _____ cups of ingredients.

2. What if it takes 4 lemons to make 1 cup of lemon juice? How many lemons would it take to make 5 pitchers? Explain how you can use the table to help you find the answer.

3. What pattern do you see in the total number of cups of ingredients?



Think: For every pitcher, the number of cups of water increases by 6.

On Your Own

4. Julie saw 3 eagles each day she went bird-watching. How many eagles did Julie see in 6 days?

5. Hicham has dimes and nickels. How many ways can he make 35 cents? (Remember: A dime is worth 10 cents and a nickel is worth 5 cents.)

Name the ways. _____

6. Cammi needs 36 postcards. She buys 4 packages of 10 postcards. How many postcards will Cammi have left over? Explain.

7. Shoua has 8 books on each of 3 bookshelves. Her aunt gives her 3 new books. How many books does Shoua have now?

8. Stuart has some 2-ounce, 3-ounce, and 4-ounce weights. How many different ways can Stuart combine the weights to make a total of 12 ounces? List the ways.



Solve Two-Step Multiplication Problems

Go Online

Interactive Examples

Use the table to solve.

1. Henry has a new album for his baseball cards. He uses pages that hold 6 cards and pages that hold 3 cards. If Henry has 36 cards, how many different ways can he put them in his album?

Pages with 6 Cards	1	2	3	4	5
Pages with 3 Cards	10	8	6	4	2
Total Cards	36	36	36	36	36

Henry can put the cards in his album 5 ways.

2. Ms. Hernandez has 17 tomato plants that she wants to plant in rows. She will put 2 plants in some rows and 1 plant in the other rows. How many different ways can she plant the tomato plants? Make a table to solve.

Rows with 2 Plants								
Rows with 1 Plant								
Total Plants								

Ms. Hernandez can plant the tomato plants _____ ways.

3. **WRITE** *Math* Write a problem you can use the *make a table* strategy to solve. Then solve the problem.

Lesson Check

4. The table shows different ways that Beto can display his 12 model cars on shelves. How many shelves have 2 cars if 8 of the shelves each have 1 car?



Shelves with 1 Car	2	4	6	8	1
Shelves with 2 Cars	5	4	3	■	■
Total cars	12	12	12	12	12


Spiral Review

5. Find the sum.

$$\begin{array}{r} 317 \\ + 151 \\ \hline \end{array}$$

7. Vadim made a pictograph to show students' favorite colors. This is the key for his graph.

Each  = 3 votes.

If 12 students voted for green, how many  should there be in the green row of the graph?

6. The school cafeteria has an order for 238 hot lunches. What is 238 rounded to the nearest ten?

8. There are 5 bikes in each bike rack at the school. There are 6 bike racks. How many bikes are in the bike racks?

Name _____

Solve Two-Step Division Problems

I Can act it out to solve two-step problems.

Florida's B.E.S.T.

- Algebraic Reasoning 3.AR.1.2
- Mathematical Thinking & Reasoning MTR.2.1, MTR.3.1



UNLOCK the Problem Real World

Madilyn bought 2 packs of pens and a notebook for \$11. The notebook cost \$3. Each pack of pens cost the same amount. What is the price of 1 pack of pens?



Read the Problem

What do I need to find?

I need to find the price of
1 pack of _____.

What information do I need to use?

Madilyn spent _____ in all.
She bought _____ packs of
pens and _____ notebook.
The notebook cost _____.

How will I use the information?

I will use the information to _____
out the problem.

Solve the Problem

Describe how to act out the problem.

Start with 11 counters. Take away 3 counters.

$$\begin{array}{r}
 \text{total} \\
 \text{cost} \\
 \downarrow \\
 \underline{\hspace{1cm}}
 \end{array}
 -
 \begin{array}{r}
 \text{cost of} \\
 \text{notebook} \\
 \downarrow \\
 \underline{\hspace{1cm}}
 \end{array}
 =
 \begin{array}{r}
 p, \text{ cost of} \\
 2 \text{ packs of pens} \\
 \downarrow \\
 p
 \end{array}$$

$$\underline{\hspace{1cm}} = p$$

Now I know that 2 packs of pens cost _____.

Next, make _____ equal groups with the
8 remaining counters.

$$\begin{array}{r}
 p, \text{ cost of} \\
 2 \text{ packs of pens} \\
 \downarrow \\
 \$8
 \end{array}
 \div
 \begin{array}{r}
 \text{number} \\
 \text{of packs} \\
 \downarrow \\
 \underline{\hspace{1cm}}
 \end{array}
 =
 \begin{array}{r}
 c, \text{ cost of} \\
 1 \text{ pack of pens} \\
 \downarrow \\
 c
 \end{array}$$

$$\underline{\hspace{1cm}} = c$$

So, the price of 1 pack of pens is _____.

Math Talk

MTR 3.1 Complete tasks with mathematical fluency.

Why do you need to use two operations to solve the problem?

Try Another Problem

Chad bought 4 packs of T-shirts. He gave 5 T-shirts to his brother. Now Chad has 19 shirts. How many T-shirts were in each pack?



Read the Problem

What do I need to find?

What information do I need to use?

How will I use the information?

Solve the Problem

Describe how to act out the problem.

- How can you use multiplication and subtraction to check your answer?

**Math
Talk**

TR Demonstrate understanding
2.1 in multiple ways.

What is another strategy you could use to solve this problem?

Share and Show



Unlock the Problem

- ✓ Circle the question.
- ✓ Underline the important facts.
- ✓ Choose a strategy you know.

1. Mac bought 4 packs of toy cars. Then his friend gave him 9 cars. Now Mac has 21 cars. How many cars were in each pack?

Act out the problem by using counters or the picture and by writing equations.

First, subtract the cars Mac’s friend gave him.

total cars ↓		cars given to Mac ↓		=	<i>c</i> , cars in 4 packs ↓
21	−	_____	=	<i>c</i>	<i>c</i>
		_____	=	<i>c</i>	



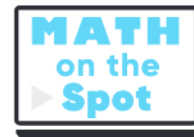
Then, divide to find the number of cars in each pack.

<i>c</i> , cars in 4 packs ↓		number of packs ↓		=	<i>p</i> , number in each pack ↓
12	÷	_____	=	<i>p</i>	
		_____	=	<i>p</i>	

So, there were _____ cars in each pack.

2. What if Mac bought 8 packs of toy boats, and then he gave his friend 3 boats? If Mac has 13 boats now, how many boats were in each pack?

On Your Own



3. Ryan gave 7 of his model cars to a friend. Then he bought 6 more cars. Now Ryan has 13 cars. How many cars did Ryan start with?

4. Chloe bought 12 sets of books. Each set has the same number of books. She donated 20 of her books to her school. Now she has 64 books. How many books were in each set?

5. Hilda cuts a ribbon into 2 equal pieces. Then she cuts 4 inches off one piece. That piece is now 5 inches long. What was the length of the original ribbon?

6. Teanna has 2 boxes of color pencils. One box has 20 color pencils, and the other box has 16 color pencils. She gives her brother 3 of the color pencils. She wants to put the color pencils that she has left into 3 equal groups. How many color pencils will Teanna put in each group?

7. **TR** Rose saw a movie, ate lunch, and bought 2 shirts while shopping. The movie cost \$10 and lunch cost \$12. She spent the same amount shopping as she did for the movie and lunch together. If each shirt cost the same amount, how much does one shirt cost? Explain how you solved the problem.

8. Eleni bought 3 packs of crayons. Each pack contains the same number of crayons. She then found 4 crayons in her desk. Eleni now has 37 crayons. How many crayons were in each pack she bought? Explain how you solved the problem.

Show the Math

Demonstrate Your Thinking

Solve Two-Step Division Problems

Go Online

Interactive Examples

Solve the problem.

- Jack has 3 boxes of pencils with the same number of pencils in each box. His mother gives him 4 more pencils. Now Jack has 28 pencils. How many pencils are in each box?

Think: I can start with 28 counters and act out the problem.

- Li writes 9 poems and then 9 more. She gives 6 poems to each of her sisters and has none left. How many sisters does she have?
- Ricardo has 2 cases of video games with the same number of games in each case. He gives 4 games to his brother. Ricardo has 10 games left. How many video games were in each case?
- Haua has \$50 to spend on gifts for her friends. Her mother gives her \$5 more. If each gift costs \$5, how many gifts can she buy?
- Joe has a collection of 35 paintings. He received 8 of them as gifts. Joe bought the rest over 3 years. If he bought the same number of paintings each year, how many paintings did Joe buy last year?

- WRITE** *Math* Write a division word problem and explain how to solve it by *acting it out*.



8 pencils

Lesson Check

7. Gavin saved \$16 to buy packs of baseball cards. His father gives him \$4 more. If each pack of cards costs \$5, how many packs can Gavin buy?
8. Chelsea buys 8 packs of markers. Each pack contains the same number of markers. Chelsea gives 10 markers to her brother. Then, she has 86 markers left. How many markers were in each pack?

Spiral Review

9. Each foot has 5 toes. How many toes do 6 feet have?
10. Each month for 5 months, Sophie makes 2 quilts. How many more quilts does she need to make to have 16 quilts?

11. Meredith practices the piano for 3 hours each week. How many hours will she practice in 8 weeks?
12. Find the unknown factor.

$$9 \times \blacksquare = 36$$

Name _____

Chapter Review

1. The camping club wants to rent rafts. Each raft can hold 8 people. Which equation could be used to find how many rafts are needed for 32 people?

(A) $8 \times 32 = \blacksquare$

(B) $32 \times \blacksquare = 8$

(C) $\blacksquare \times 8 = 32$

(D) $32 \times 8 = \blacksquare$

2. Draw a bar model and write a multiplication expression to represent the comparison *4 times as many as 9*.

Find the unknown number.

4. $m \times 5 = 30$

$m = \underline{\hspace{2cm}}$

6. $20 = 2 \times n$

$n = \underline{\hspace{2cm}}$

8. $7 = 63 \div y$

$y = \underline{\hspace{2cm}}$

5. $48 \div \blacksquare = 6$

$\blacksquare = \underline{\hspace{2cm}}$

7. $p \div 8 = 4$

$p = \underline{\hspace{2cm}}$

9. $1 \times 10 = \star$

$\star = \underline{\hspace{2cm}}$

For Problems 10 and 11, describe a pattern for the table. Then complete the table.

10.

Weeks	1	2	3	4	5
Days	7	14	21		

11.

Tickets	2	3	4	5	6
Cost	\$8	\$12	\$16		

12. Giana says that 33 is an even number. Is she correct? Explain.

- (A) yes; You can make 2 equal groups with one left over.
- (B) yes; You can make 2 equal groups.
- (C) no; You can make 2 equal groups with one left over.
- (D) no; You can make 2 equal groups.

13. List the first five multiples of 9.

14. Which numbers are a multiple of *oth* 3 and 4? (Hint: There is more than one answer.)

- (A) 12
- (B) 6
- (C) 21
- (D) 36
- (E) 24
- (F) 16
- (G) 20

Name _____

15. Derek has 6 dogs. Each dog gets 3 dog biscuits every day. How many biscuits will Dexter need for all of his dogs for Saturday and Sunday?

- (A) 18
- (B) 8
- (C) 16
- (D) 36

16. Brooklyn has 10 dolphin stickers. Jorge's stickers can be represented by 3×10 . Which comparison statement describes the expression?

- (A) Brooklyn has 10 more stickers than Jorge.
- (B) Jorge has 3 times as many stickers as Brooklyn.
- (C) Brooklyn has 3 more stickers than Jorge.
- (D) Jorge has 3 fewer stickers than Brooklyn.

17. Explain why 60 is a multiple of 5, 6, 10, and 12. You can write equations as part of your explanation.

18. Hanya's puppy weighs 23 pounds. If he gains 3 pounds every month for the next five months, how much will the puppy weigh at the end of the fifth month?

19. Tim describes a pattern. He says the pattern shown in the table is “Add 3.” Is Tim correct? Explain how you know.

Packages	1	2	3	4	5
Markers	4	8	12	16	20

20. There are 54 students in the marching band. They form equal rows, so that there are no fewer than 5 rows and no more than 10 students in each row. Which is an array that the students could use?

- (A) 6 rows of 9 students (C) 10 rows of 5 students
 (B) 5 rows of 10 students (D) 6 rows of 8 students

21. Describe a pattern for this table.

Tanks	3	4	5	6	7
Fish	240	320	400	480	560

Pattern: _____

How would the table change if the pattern was “Multiply the number of tanks by 8”? Explain.

Name _____

22. Sally has 4 comic books. Renaldo has 6 comic books. Jay has 2 times as many comic books as Sally and Renaldo combined. Which expression represents the number of comic books Jay has compared to Sally and Renaldo combined?

- (A) $4 + 6$
- (B) 2×6
- (C) 2×10
- (D) $2 \div 10$

23. The camping club rents 4 rafts. How many people can 4 rafts hold?

- (A) 28
- (B) 30
- (C) 42
- (D) 32

Rafts	1	2	3	4
People	8	16	24	■

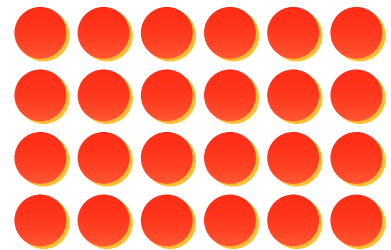
24. There are 24 students in Mr. Smith's class and 30 students in Mr. Becker's class. The students sit in chairs in the gymnasium in rows with 6 chairs in each row. How many rows of chairs are there in all?

- (A) 54
- (B) 4
- (C) 9
- (D) 5

25. Use the array. Which number makes the equation true?

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

- (A) 6
- (B) 8
- (C) 20
- (D) 12



26. For Problems 26a–26d, choose Odd or Even to describe the product.

26a. 52×98 Odd Even

26b. 25×30 Odd Even

26c. 84×43 Odd Even

26d. 49×71 Odd Even

27. Circle all the numbers that are divisible by 2.

115 275 566 328 459 732

28. The number of marbles in a jar is a multiple of 8. Which of these could be the number of marbles in the jar? Select all that apply.

(A) 24

(B) 38

(C) 40

(D) 56

(E) 62

(F) 84

29. O'Shunti has a new book for her stickers. She uses pages that hold 8 stickers and pages that hold 4 stickers. If O'Shunti has 32 stickers, how many different ways can she put them in her book? Complete the table and write the answer below.

Pages with 8 Stickers	1	2		4
Pages with 4 Stickers	6		2	
Total Stickers	32			

O'Shunti can put the stickers in her book _____ ways.