Essential Question How Can You Use Multiplication to Find the Factors of a Number?

A

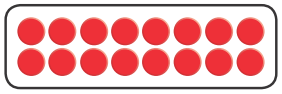
Jean wants to arrange her action figures in equal-size groups. What are all the ways Jean can arrange her action figures?

Jean can think of all the factor pairs of 16. Factor pairs are two whole numbers that when multiplied give you a certain product.

16 action figures

B

1 group of 16



16 groups of 1

Jean can arrange 1 group of 16 figures or 16 groups of 1 figure.

$1 \times 16 = 16$

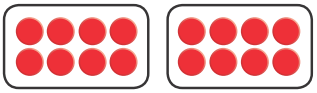
$16 \times 1 = 16$

So, 1 and 16 are factors of 16.

C

8 groups of 2

2 groups of 8



Jean can arrange 8 groups of 2 figures or 2 groups of 8 figures.

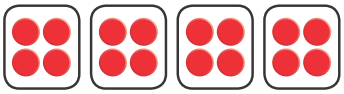
$2 \times 8 = 16$

$8 \times 2 = 16$

So, 2 and 8 are factors of 16.

D

4 groups of 4



Jean can arrange 4 groups of 4 figures. 4 is a factor of 16.

$4 \times 4 = 16$

The factor pairs for 16 are 1 and 16, 2 and 8, and 4 and 4.

Convince Me! Construct Arguments How do you know there are no other factors for 16 other than 1, 2, 4, 8, and 16? Explain.

Name _____

Guided Practice

Do You Understand?

1. Jean bought 7 more action figures. What are the different equal-size groups she can make now?

2. What factor besides 1 does every even number have?

Do You Know How?

For **3–6**, write the factors of each number. Use counters to help.

3. 2

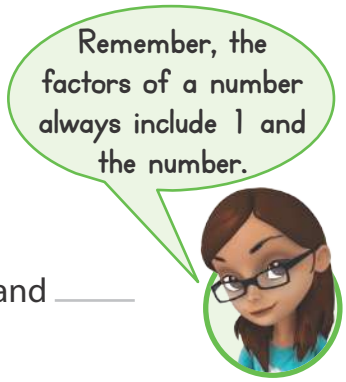
4. 20

5. 28

6. 54

Independent Practice

Leveled Practice For **7–12**, write the factor pairs for each number.



7. 34
_____ and 34
2 and _____

8. 39
1 and _____
_____ and 13

9. 61
1 and _____

10. 14
_____ and _____
_____ and _____

11. 22
_____ and _____
_____ and _____

12. 51
_____ and _____
_____ and _____

For **13–21**, write the factors of each number. Use counters to help as needed.

13. 6

14. 32

15. 83

16. 11

17. 49

18. 25

19. 30

20. 63

21. 19

Problem Solving

22. Irene wants to list the factors for 88. She writes 2, 4, 8, 11, 22, 44, and 88. Is Irene correct? Explain.

23. **enVision®** STEM The roots of a plant are often the largest part of the plant. Winter rye can grow combined root tissue well over 984,000 feet in length. Write this number in expanded form.

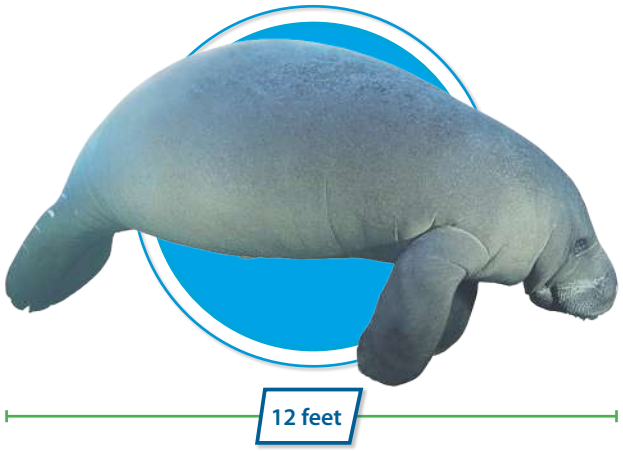
24. **Model with Math** A restaurant receives a shipment of 5,000 ketchup packets. In one week, they use 1,824 packets. The next week, they use 2,352 packets. Write and solve equations to find how many ketchup packets the restaurant has left.

25. Any number that has 9 as a factor also has 3 as a factor. Why is this?

26. **Higher Order Thinking** A mother manatee, pictured to the right, is three times as long as her baby manatee.

a. How long is her baby manatee? Write and solve an equation.

b. If a blue whale is 9 times as long as the manatee shown, how much longer is a blue whale than the manatee? Write and solve equations.



Assessment Practice

27. Which number has 3 and 29 as one of its factor pairs?

Ⓐ 3
Ⓑ 17
Ⓒ 67
Ⓓ 87

28. A store manager wants to display 45 cans of soup in an array. Which of the following shows 3 ways the cans could be displayed?

Ⓐ $1 \times 9, 9 \times 5, 3 \times 15$
Ⓑ $15 \times 3, 9 \times 1, 5 \times 9$
Ⓒ $5 \times 9, 3 \times 15, 9 \times 5$
Ⓓ $45 \times 1, 15 \times 1, 9 \times 1$