

Name \_\_\_\_\_

## Equivalent Ratios

**Essential Question** How can you determine if two ratios are equivalent?

### UNLOCK the Problem REAL WORLD

To make brass, you can mix 2 parts zinc to 3 parts copper, a ratio of 2 to 3. If you have 12 bars of copper and use them all, how many bars of zinc do you need to make brass?

- You know that each group of zinc to copper bars needed to make brass has a ratio of 2 to 3. How can you use this group to find an equivalent ratio?

Since ratios can be written as fractions, 2 to 3 can be written as  $\frac{2}{3}$ . Use what you know about equivalent fractions to find equivalent ratios.

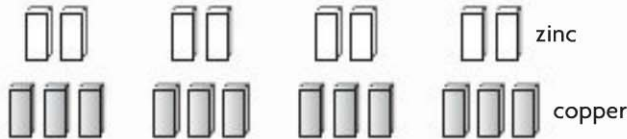
**1** Use a diagram to find an equivalent ratio.



**STEP 1** Draw bars to represent a 2 to 3 ratio of zinc to copper.



**STEP 2** Add groups until you have 12 bars of copper.



**STEP 3** Count the zinc bars. Write an equivalent ratio.

There are 8 zinc bars. So, 2 to 3 is equivalent to the ratio 8 to 12.

**Try This!** Use equivalent ratios to find out if 6:8 is equivalent to 18:24.

**STEP 1** Write the ratios as fractions.

$$6:8 = \frac{6}{8} \quad 18:24 = \frac{18}{24}$$

**STEP 2** Write the fractions in simplest form. Then compare.

$$\frac{6 \div 2}{8 \div 2} = \frac{3}{4} \quad \frac{18 \div 6}{24 \div 6} = \frac{3}{4}$$

Both ratios equal  $\frac{3}{4}$ , so they are equivalent.

#### Math Talk

How does knowing how to simplify fractions help you decide whether two ratios are equivalent?

## Share and Show



Are the ratios 3:5 and 12:20 equivalent?

1a. Write both ratios as fractions.

\_\_\_\_\_

1b. Are both ratios in simplest form?

\_\_\_\_\_

1c. Write both ratios in simplest form.

\_\_\_\_\_

1d. Are the ratios equivalent?

\_\_\_\_\_

Write *equivalent* or *not equivalent*.

2. 1 to 3 and 2 to 6

\_\_\_\_\_

3. 3 to 7 and 12 to 21

\_\_\_\_\_

## On Your Own

Write the equivalent ratio.

4. 5 to 2 = \_\_\_\_ to 4

5. 3 to 6 = 7 to \_\_\_\_

6. 7:2 = \_\_\_\_ :6

7. 14 to 21 = \_\_\_\_ to 15

8. 6:10 = \_\_\_\_ :30

9. 8 to 9 = 40 to \_\_\_\_

Write *equivalent* or *not equivalent*.

10. 3:5 and 21:35

\_\_\_\_\_

11. 4 to 3 and 36 to 24

\_\_\_\_\_

12. 27:72 and 9:24

\_\_\_\_\_

## Problem Solving



13. Three of every 5 pizzas that Miggy's Pizza sells are cheese pizzas. Miggy's sold 80 pizzas today. How many of them would you expect were cheese?

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