Name _____

Equivalent Ratios

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

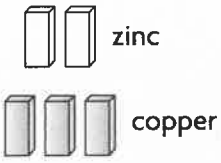
UNLOCK the Problem REAL WORLD

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?

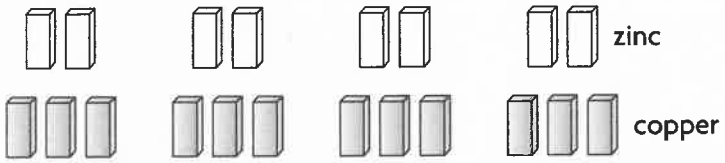
Since ratios can be written as fractions, 2 to 3 can be written as $\frac{2}{3}$. Use what you know about equivalent fractions to find equivalent ratios.

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.

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

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

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

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?

_____