

REVIEW: Proportions

Name _____

Key Concept and Vocabulary

Proportion: "2 is to 3 as 4 is to 6."

$$\frac{2}{3} = \frac{4}{6}$$

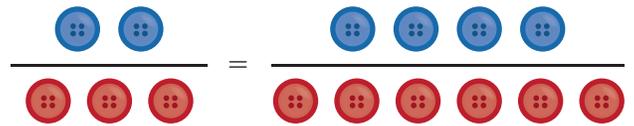
$$2 \cdot 6 = 3 \cdot 4$$

Cross products are equal.



Visual Model

The ratio "2 to 3" is equal to the ratio "4 to 6."



Skill Examples

- $\frac{3}{5} = \frac{12}{20}$ is a proportion because the cross products are equal.
- $\frac{1}{7} = \frac{7}{48}$ is *not* a proportion because the cross products are not equal.
- $\frac{10}{2} = \frac{5}{1}$ is a proportion because the cross products are equal.

Application Example

- You spend \$5 for 3 tennis balls. Your friend spends \$6.25 for 4 tennis balls. Are the two rates proportional?

$$\frac{\$5}{3 \text{ balls}} \stackrel{?}{=} \frac{\$6.25}{4 \text{ balls}} \quad 5(4) \neq 3(6.25)$$

∴ The rates are *not* proportional.

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Check your answers at BigIdeasMath.com.

Decide whether the statement is a proportion.

- $\frac{3}{7} = \frac{6}{14}$ proportion
- $\frac{1}{4} = \frac{4}{1}$ not a proportion
- $\frac{3}{2} = \frac{9}{4}$ not a proportion
- $\frac{1.25}{3} = \frac{5}{12}$ proportion
- $\frac{6}{18} = \frac{120}{360}$ proportion
- $\frac{4}{5} = \frac{4+4}{5+5}$ proportion

Complete the proportion.

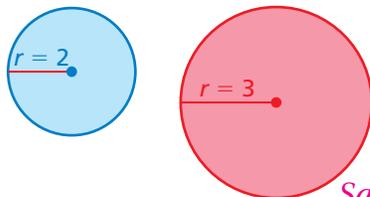
$$11. \frac{2}{5} = \frac{\boxed{4}}{10}$$

$$12. \frac{1}{6} = \frac{4}{\boxed{24}}$$

$$13. \frac{3}{\boxed{8}} = \frac{9}{24}$$

Write the proportion that compares the circumference to the radii of the two circles.

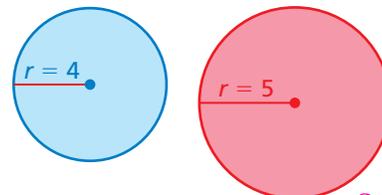
14.



Sample answer:

$$\frac{4\pi}{6\pi} = \frac{2}{3}$$

15.



Sample answer:

$$\frac{8\pi}{10\pi} = \frac{4}{5}$$

- COMPARING RATES** You spend \$20 for 5 T-shirts. Your friend spends \$15 for 3 T-shirts. Are the two rates proportional? no