REVIEW: Proportions

Name _____

Key Concept and Vocabulary

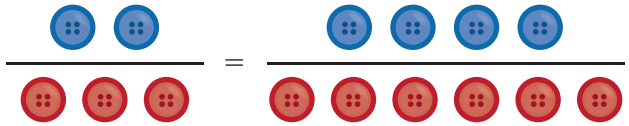
A **proportion** is an equation stating that the values of two ratios are equivalent.

$\frac{2}{3} = \frac{4}{6}$ ← Cross products are equal.

$2 \cdot 6 = 3 \cdot 4$

Visual Model

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



Skill Examples

1. 3 : 5 and 12 : 20

$\frac{3}{5} = \frac{12}{20}$

The ratios form a proportion because the values of the ratios are equivalent.

2. 1 : 7 and 7 : 48

$\frac{1}{7} \neq \frac{7}{48}$

The ratios do *not* form a proportion because the values of the ratios are *not* equivalent.

Application Example

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

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

∴ The rates are *not* proprotional.

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Check your answers at BigIdeasMath.com.

Decide whether the statement is a proportion.

4. $\frac{3}{7} \stackrel{?}{=} \frac{6}{14}$ proportion

5. $\frac{1}{4} \stackrel{?}{=} \frac{4}{1}$ not a proportion

6. $\frac{3}{2} \stackrel{?}{=} \frac{9}{4}$ not a proportion

7. $\frac{1.25}{3} \stackrel{?}{=} \frac{5}{12}$ proportion

8. $\frac{6}{18} \stackrel{?}{=} \frac{120}{360}$ proportion

9. $\frac{4}{5} \stackrel{?}{=} \frac{4+4}{5+5}$ proportion

Complete the proportion.

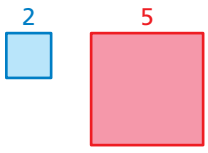
10. $\frac{2}{5} = \frac{\boxed{4}}{10}$

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

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

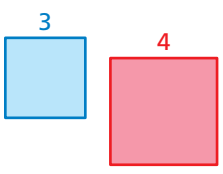
Write the proportion that compares the perimeters to the side lengths of the two squares.

13.



Sample answer: $\frac{8}{2} = \frac{20}{5}$

14.



Sample answer: $\frac{12}{3} = \frac{16}{4}$

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