

8th Grade Lesson 54

- I can find ratios & solve proportions.
- I can substitute numerical values for variables & simplify exponents & roots.

$$\frac{6}{8} \quad \frac{12}{16} \quad \frac{9}{12} \quad \frac{24}{32} \quad \begin{array}{l} 3 \text{ to } 4 \\ 3:4 \\ \cancel{48} \\ 64 \end{array}$$
$$\frac{3}{4} = \frac{6}{8}$$

Proportions can be either true proportions or false proportions.

$$\frac{1}{2} = \frac{5}{10} \quad \text{True}$$

$$\frac{1}{2} \neq \frac{7}{10} \quad \text{False}$$

The **cross products** of a true proportion are equal to each other.

$$\frac{3}{4} = \frac{6}{8} \quad \text{24}$$

$$\frac{9}{4} = \frac{6}{8}$$

When one part of a proportion is a variable, the proportion is a **conditional proportion**...also called a **conditional equation**.

$$\frac{20}{15} = \frac{4}{x}$$

$$\frac{20x}{20} = \frac{15 \cdot 4}{20}$$

$$x = \frac{60}{20}$$

$$x = 3$$

$$\frac{4}{5} = \frac{p}{7}$$

$$\frac{5p}{5} = \frac{4 \cdot 7}{5}$$

$$p = \frac{28}{5}$$

Evaluate: x^y if $x = 4$ and $y = 3$

$$4^3 = 64$$

Evaluate $\sqrt[P]{Q}$ if $P = 3$ and $Q = 64$

$$\sqrt[3]{64}$$

Assignment

Problem Set 54