

Jadwin-Geometry-8th Period-Off Site Learning Packet Day 5

Ratios and Proportions day 2

Proportion – is an equation stating that two ratios are equal. $\frac{a}{b} = \frac{c}{d}$ where a and d are the extremes and b and c are the means.

Cross Products Property

In a proportion, if $\frac{a}{b} = \frac{c}{d}$ and b and $d \neq 0$, then $ad = bc$.

$$\frac{a}{b} = \frac{c}{d}$$

$$ad = bc$$

Example: Solve the proportion $\frac{7}{x} = \frac{56}{72}$.

$$504 = 56x$$

$$x = 9$$

Example: Solve the proportion $\frac{3}{8} = \frac{x}{56}$

$$168 = 8x$$

$$x = 21$$

Example: Solve the proportion $\frac{2y}{9} = \frac{8}{4y}$.

$$8y^2 = 72$$

$$y^2 = 9$$

$$y = 3$$

Properties of Proportions

ALGEBRA

The proportion $\frac{a}{b} = \frac{c}{d}$ is equivalent to the following:

$$ad = bc$$

$$\frac{b}{a} = \frac{d}{c}$$

$$\frac{a}{c} = \frac{b}{d}$$

NUMBERS

The proportion $\frac{1}{3} = \frac{2}{6}$ is equivalent to the following:

$$1(6) = 3(2)$$

$$\frac{3}{1} = \frac{6}{2}$$

$$\frac{1}{2} = \frac{3}{6}$$

Example: Given that $18c = 24d$, find the ratio of d to c in simplest form.

$$\frac{d}{c} = \frac{18}{24}$$

$$\frac{d}{c} = \frac{3}{4}$$

Example: Given that $16s = 20t$, find the ratio $t:s$ in simplest form.

$$\frac{t}{s} = \frac{16}{20}$$

$$\frac{t}{s} = \frac{4}{5}$$

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Solve the following proportions.

1. $\frac{9}{t} = \frac{36}{28}$

2. $\frac{x}{32} = \frac{15}{16}$

3. $\frac{24}{42} = \frac{y}{7}$

4. $\frac{2a}{3} = \frac{8}{3a}$

5. Given $5b = 20c$, find the ratio $\frac{b}{c}$ in simplest form.

6. Given $24x = 9y$, find the ratio $x:y$ in simplest form.