

3 - 6

Ratios and Proportions

ratio: a comparison of two numbers by division



$$\frac{1}{4} \quad 1:4 \quad 1 \text{ to } 4 \quad .25 \quad 25\%$$

proportion: an equation stating
that two ratios are equal



Determine whether the following ratios form a proportion.



Ex: $\frac{4}{5}$ and $\frac{24}{30} \div 6$ yes

$\frac{4}{5}$ $\frac{4}{5}$

****check by simplifying each**

Determine whether the following ratios form a proportion.



Ex: $\frac{0.4}{0.8}$ and $\frac{0.7}{1.4}$

\swarrow \searrow

$.56$ $.56$

yes

Ex: $\frac{6}{8}$ and $\frac{24}{28}$

\swarrow \searrow

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no

Solve the following proportions.



Ex: $\frac{n}{15} = \frac{24}{16}$

$\frac{16n}{16} = \frac{360}{16}$

$n = 22.5$

$\frac{1}{2} = \frac{2}{4}$

Ex: $\frac{n}{12} = \frac{3}{8}$

$\frac{8n}{8} = \frac{36}{8}$

$n = 4.5$

Ex: Trent goes on a 30-mile bike ride every Saturday. He rides the distance in 4 hours. At this rate, how far can he ride in 6 hours?



$$\frac{30 \text{ mi}}{4 \text{ hr}} = \frac{X \text{ mi}}{6 \text{ hr}}$$

$$\frac{30 \text{ mi}}{X \text{ mi}} = \frac{4 \text{ hr}}{6 \text{ hr}}$$

$$4X = 180$$

$$X = 45 \text{ mi}$$

Ex: The scale of a map for Crater Lake National Park is 2 inches = 9 miles. The distance between Discovery Point and Phantom Ship Overlook on the map is $1\frac{3}{4}$ inches. What is the distance (in miles) between these two points?



$$\begin{array}{l}
 \cancel{2 \text{ in}} \\
 \cancel{9 \text{ mi}} \\
 \cancel{x \text{ mi}} \\
 \hline
 \cancel{x} = \frac{63}{4} = 15\frac{3}{4}
 \end{array}$$

$$\frac{7}{4} \cdot \frac{9}{1} = \frac{63}{4}$$

$$x = \frac{63}{4} = 15\frac{3}{4} \text{ mi}$$



Homework:

p.158 #12 - 30 even (skip 18), 31 - 33