2.09 Ratio and Proportion

Intermediate Algebra: One Step at a Time. **Page 216 - 219: #6**

Dr. Robert J. Rapalje, Retired
Central Florida, USA

At first glance, you may think, "Word Problems!!" However, let me assure you that these are NOT word problems! They are just "problems with words!" They are very easy problems that need almost NO explanation. They are useful to everyday life, and there is nothing difficult about this page. Just set up a proportion $\frac{a}{b}=\frac{c}{d}$, making sure that the numerators and denominators have the same units, and solve the proportion as in the previous sections by "cross-multiplying" $a \bullet d = b \bullet c$.

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If on the interstate it takes 3 hours to travel 200 miles, how long will it take to travel 750 miles at this rate?

Solution: **Set up a proportion of either hours over miles, or miles over hours. It doesn't matter which way you set it up, as long as you do both ratios the same. In either method, begin by letting x = number of hours.**

First Method: $\frac{hours}{miles}=\frac{hours}{miles}$

$$\frac{3\ hours}{200\ miles}=\frac{x\ hours}{750\ miles}$$

Cross multiply: $200\ x = 3 \bullet 750$

$$200\ x = 2250$$

$$x = \frac{2250}{200}$$

$$x = 11.25\ \ hours$$

Second Method: $\frac{miles}{hours}=\frac{miles}{hours}$

$$\frac{200\ miles}{3\ hours} = \frac{750\ miles}{x\ hours}$$

Cross multiply: $200\ x = 3 \bullet 750$

$$200\ x = 2250$$

$$x = \frac{2250}{200}$$

$$x = 11.25\ \ hours$$