Introduction to Solving Proportion

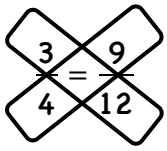
Name:

Date: Period:

A proportion is an equation showing two equal ratios.

$$\frac{3}{4} = \frac{9}{12}$$

It can be shown that cross products are equivalent. That is, multiplying the numerator of the first ratio with the denominator of the second ratio will be a value equivalent to the value you get by multiplying the numerator of the second ratio with the denominator of the first ratio.



$$3(12) = 9(4)$$

$$36 = 36$$

If one part of a proportion is unknown, using the concept of equivalent cross products, an equation can be written and solved algebraically.

$$\frac{3}{4} = \frac{9}{x}$$

$$3x = 9(4)$$

$$3x = 36$$

$$\frac{3x}{3} = \frac{36}{3}$$

$$x = 12$$

Write and solve an algebraic equation to find the missing value for the following ratio.

$$\frac{x}{3} = \frac{10}{15}$$

Write and solve algebraic equations to find the missing value for each of the following ratios.

1. $\frac{5}{10} = \frac{1}{x}$

2. $\frac{x}{6} = \frac{5}{15}$

3. $\frac{12}{16} = \frac{3}{x}$

4. $\frac{4}{x} = \frac{10}{30}$

5. $\frac{3}{x} = \frac{15}{25}$

6. $\frac{2}{5} = \frac{x}{35}$

7. $\frac{7}{3} = \frac{21}{x}$

8. $\frac{1}{x} = \frac{20}{100}$

9. $\frac{x}{2} = \frac{1}{4}$

10. $\frac{6}{9} = \frac{x}{2}$