

## PROPORTIONS

A proportion is an equation with

There are two methods to solve proportions.

↳ example 1: solve for x:

$$\frac{x}{4} = \frac{2}{3}$$

METHOD I: CROSS multiplying — also known as the "heart" method.

$$\frac{x}{4} = \frac{2}{3}$$

$x \cdot 3 = 2 \cdot 4$

$x =$

NOTE: You DO NOT want to CROSS MULTIPLY when you DO NOT have a PROPORTION.

METHOD II: CLEARING the fractions  
by multiplying both sides  
by the LCD

$$\frac{x}{4} = \frac{2}{3}$$

↳ EXAMPLE 2: SOLVE FOR X:

$$\frac{x}{2} = \frac{3}{4} + \frac{1}{2}$$

Sometimes cross multiplying is  
much easier:

↳ example 3: solve for x:

$$\frac{\frac{1}{2}}{x} = \frac{4}{\frac{2}{3}}$$

↳ example 4: solve for x: Reduce if Possible

$$a) \frac{x}{4} = \frac{5}{8}$$

$$b) \frac{2}{5} = \frac{4}{x}$$

$$c) \frac{25}{100} = \frac{x}{4}$$

NOTE: It would be helpful to reduce every fraction first.

↳ EXAMPLE 5: SOLVE FOR X: Reduce  
if possible.

$$\frac{\frac{1}{2}}{x} = \frac{\frac{1}{3}}{14}$$

↳ example 6: SOLVE FOR X. Reduce  
if possible

$$a) \frac{0.5}{1.2} = \frac{1}{x}$$

$$b) \frac{0.5}{x} = \frac{2.1}{0.7}$$

## PROPORTIONS Practice Problems

Solve for x. Reduce if possible:

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

2. 
$$\frac{\frac{2}{3}}{x} = \frac{9}{\frac{1}{2}}$$

3. 
$$\frac{x}{0.3} = \frac{0.5}{2.5}$$