

Proportions: A proportion is _____

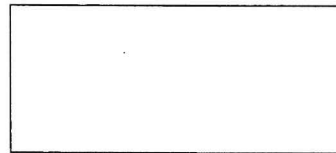
For example, a university campus has 1,000 male students, and 3,000 female students.

a) What is the ratio of males to females? _____

b) What is that ratio in lowest terms? _____

c) These two ratios are equivalent ratios, so we can write a proportion...

A proportion is more useful if it is written in fraction form...



Solving proportions is an important skill to have. We can solve proportions two ways:

1) By looking for a multiplication relationship between the ratios

You try it: Solve the following proportions by looking for a multiplication relationship **between the ratios**.

a. $6 : 11 = 30 : x$

b. $2 : x = 8 : 40$

The second way to solve proportions is...

2) By looking for a multiplication relationship within the ratios.

You try it: Solve the following proportions by looking for a multiplication relationship **within the ratios**.

a. $5 : x = 6 : 30$

b. $2 : 6 = x : 81$

But is there an easier way to solve proportions that works the same way every time? Yes!

Consider the following example, we will solve it two ways:

Looking for Relationships:

$$\frac{x}{10} = \frac{8}{2}$$

Cross-Multiplying:

$$\frac{x}{10} = \frac{8}{2}$$

KEY IDEA: To solve a proportion using cross multiplication requires 2 easy steps...

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Solving Proportions Practice

Let's solve the following proportions using our new method:

a) $\frac{8}{3} = \frac{a}{12}$

b) $\frac{16}{x} = \frac{10}{4}$

c) $\frac{13.5}{8.1} = \frac{1.5}{a}$

d) $\frac{5.6}{42} = \frac{a}{15}$

e) $\frac{1}{7} = \frac{10}{b}$

f) $\frac{21}{9} = \frac{y}{1.5}$

Let's use this idea of proportions to solve some word problems.

Example#1: In 3 minutes, Mike can type 120 words.

How long will it take Mike to type 200 words?

Words	Proportion	Answer	Statement

Example#2: Marcia earned \$20 for working 4 hours.

How many hours would it take to earn \$150?

Words	Proportion	Answer	Statement

Think:

From the example at the beginning of the lesson, the university had a ratio of male to female students of 1:3.

In the year 2025, the school expects to have 6,000 total students. Use a proportion to estimate the number of male students.