

Conversions and Proportions

Like all things mathematical, conversions between units in the English/American Standard (usually just called Standard) system and between the Standard and Metric systems can be done a couple of ways.

Some folks can tell just by looking at the conversion whether they are supposed to multiply or divide; other folks cannot. If you are not one of these people, you can always use a proportion! Here is how the proportion is set up:

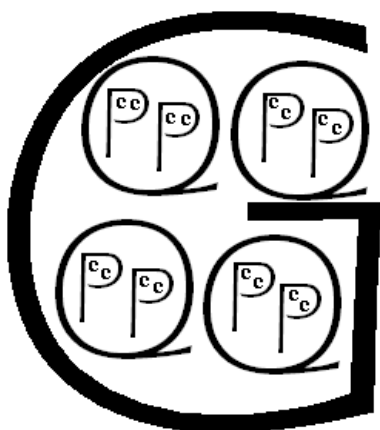
$$\begin{array}{ccc} \text{conversion factor} & & \text{what we're looking for} \\ \downarrow & & \downarrow \\ \boxed{\phantom{12 \text{ inches}}} & = & \boxed{\phantom{x \text{ inches}}} \end{array}$$

Example 1: $4\frac{1}{2}$ feet = _____ inches (We know that 12 inches = 1 foot)

$$\begin{array}{ccc} \text{conversion factor} & & \text{what we're looking for} \\ \downarrow & & \downarrow \\ \frac{12 \text{ inches}}{1 \text{ foot}} & = & \frac{x \text{ inches}}{4\frac{1}{2} \text{ feet}} \end{array}$$

Example 2: 32 cups = _____ quarts

Let's look at our "Big G". How many cups are there in 1 quart? _____



$$\begin{array}{ccc} \text{conversion factor} & & \text{what we're looking for} \\ \downarrow & & \downarrow \\ \frac{\text{cups}}{1 \text{ quart}} & = & \frac{32 \text{ cups}}{x \text{ quarts}} \end{array}$$

This method works in all of chapter 7, regardless of the type of conversion you're working with. Sometimes, you have to do things in two or more steps, however. Make sure you **label** things or else you're asking for problems.

Example 3: $5\frac{1}{3}$ yards = _____ inches

This time, we don't have a conversion that takes us from yards to inches, so

we'll have to take a detour: $5\frac{1}{3}$ yards \rightarrow _____ feet \rightarrow _____ inches

a) $5\frac{1}{3}$ yards = _____ feet

b) _____ feet = _____ inches

We can also use this same method on problems to convert between Standard and Metric systems.

Example 4: 150 lbs = _____ kg.
(1 kg \approx 2.2 lbs)

Example 5: 15 in = _____ cm
(1 inch = 2.54 cm)