Converting Linear Measurements to Other Units

In order to convert a measurement from one unit to another, you need to know the ***conversion factor*** (previous page) and you need a consistent ***method***.

Let's convert 2.7 m to cm.

Method 1: Use a **proportion**.

Step 1: Write your conversion factor as a fraction. Make sure you know which unit is which!

$$\frac{1\ m}{100\ cm} \quad \text{OR} \quad \frac{100\ cm}{1\ m}$$

Step 2: Write an equals sign, and then place a blank fraction line to the right of your fraction from step 1.

$$\frac{1\ m}{100\ cm} = \_\_\_\_ \quad \text{OR} \quad \frac{100\ cm}{1\ m} = \_\_\_\_$$

Step 3: Place the given measurement in the right hand fraction. Make sure to put it in the right place: According to your conversion fraction ***meters*** go on 'top' and ***centimetres*** on the 'bottom'. Since we were given a measurement in metres, it goes on the 'top'. Put an x (or any other letter) on the bottom to represent your unknown quantity.

$$\frac{1\ m}{100\ cm} = \frac{2.7\ m}{x} \quad \text{OR} \quad \frac{100\ cm}{1\ m} = \frac{x}{2.7\ m}$$

Step 4: Now use ***cross multiply and divide*** to find the answer. This means to multiply the two numbers that are located diagonally across the equals sign, and then divide by the "leftover" number.

$$\frac{1\ m}{100\ cm} = \frac{2.7\ m}{x} \quad \text{OR} \quad \frac{2.7\ m \times 100\ cm}{1\ m} = x$$

$$x = 2.7 \times 100 \div 1$$

$$270\ cm = x$$

$$x = 2700$$

Step 5: The final step is to write your answer ***including the correct unit***. Every measurement you write in this course requires you to include an appropriate unit.

~~**2700 *cm***~~

270 cm

(Method 2 shown on next page...)