

4. The solution to this problem involves the technique of using a ratio. This technique will be used often in this text, so it is good to become familiar with the use of ratios early in the course.

There is the same proportionality between one inch and 2.54 centimeters as there is between the desired answer and 7.00 centimeters. Expressed as an equation this becomes

$$\frac{1 \text{ inch}}{2.54 \text{ cm}} = \frac{x}{7.00 \text{ cm}}$$

Our goal is to isolate x on the right hand side so, we must multiply both sides of the equation by 7.00 cm.

$$\frac{(1 \text{ inch}) (7.00 \text{ cm})}{2.54 \text{ cm}} = \frac{x (7.00 \text{ cm})}{(7.00 \text{ cm})}$$

$$(1 \text{ inch}) (7.00 / 2.54) = x$$

$$x = 2.76 \text{ inches}$$

Note that the cm units canceled out on the left hand side leaving the desired unit of inches.