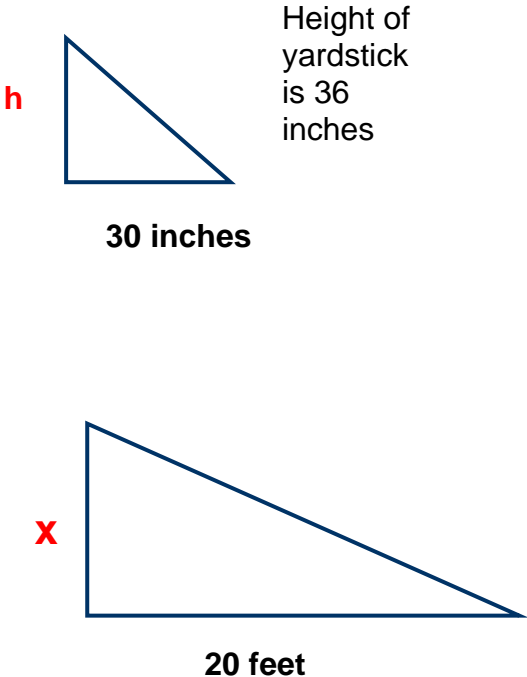


Instructions	Example
<p>1. Carefully read the problem. Note what numerical data is given, and what is being asked for.</p>	<p>Find the height of a tree which casts a shadow 20 feet long when, at the same time, a vertical yard stick casts a shadow 30 inches long.</p>
<p>2. Make a sketch, drawing, or picture of the described situation, and put all the given data from the problem on the drawing. Look for what the problem's question is. In other words, what do they want to know? In this example, they want to know the height of the tree. Let x = the height of the tree.</p>	 <p>Height of yardstick is 36 inches</p> <p>30 inches</p> <p>20 feet</p>
<p>3. Write down any numerical relationships that the problem gives you. In this case, realize that each height is proportional to the length of each shadow.</p>	$\frac{x}{20} = \frac{h}{30}$

4. Solve for x:

Substitute the yardstick length for the height, $h = 36$.

Multiply both sides of the equation by 20 in order to eliminate the denominator of x (cross-multiplication also works here).

Reducing the remaining fraction simplifies calculations.

Divide 5 into 20, which yields 4; then multiply 6 and 4.

$$\frac{x}{20} = \frac{36}{30}$$

$$(20) \frac{x}{20} = \frac{36}{30} (20)$$

$$x = \frac{6}{5}(20)$$

$$x = 24$$

Answer:

The height of the tree is 24 feet.

Notice that this problem uses two different units of measurement, inches and feet. However, it is unnecessary to convert feet to inches before solving (the answer is exactly the same, whether you convert or not). Why?