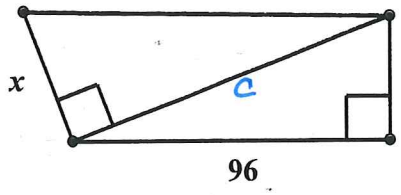
Solution

More similar triangles practice

1. What should x be in order for the triangles to be similar?



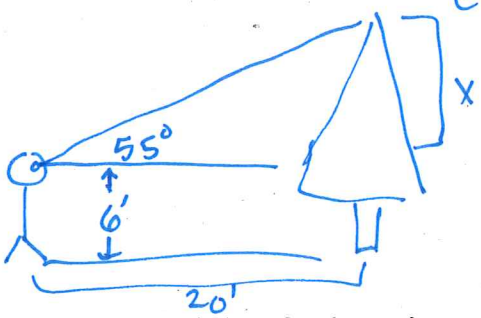
First find c: $28^2 + 96^2 = c^2$

$10{,}000 = c^2$

$100 = c$

Now write a proportion $\frac{x}{100} = \frac{28}{96} \Rightarrow x = \frac{100 \cdot 28}{96_{24}} = \frac{175}{6}$

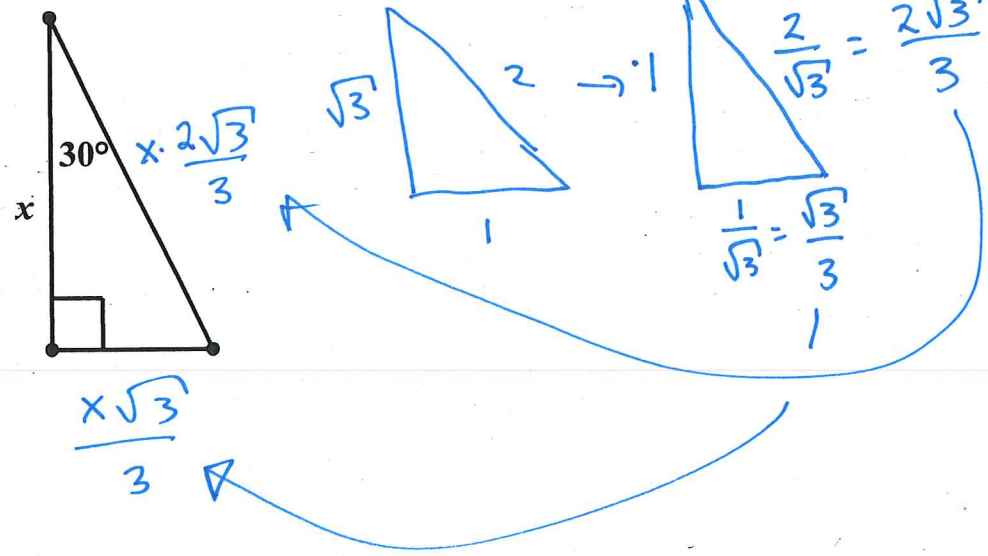
2. Bob measures the angle of elevation to the top of a near-by tree to be 55°. Bob's eye-level is 6'. He is standing 20' from the tree. How tall is the tree?



$\cancel{\cos 55^\circ} = \tan 55^\circ = \frac{x}{20} \Rightarrow x = 20 \tan 55^\circ$

tree height $= 6 + 20\tan(55^\circ)$

3. Find a formula in x for the perimeter of the triangle



$P = x + x\frac{\sqrt{3}}{3} + x \cdot \frac{2\sqrt{3}}{3}$

$= x + x\left(\frac{\sqrt{3} + 2\sqrt{3}}{3}\right) = x + x\left(\frac{3\sqrt{3}}{3}\right) = x + x\sqrt{3}$

or $x(1 + \sqrt{3})$.