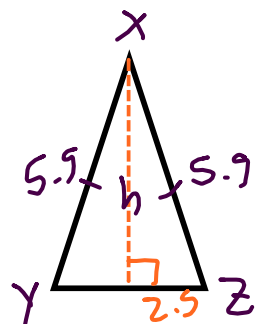


21.



$$5.9^2 = 2.5^2 + h^2$$

$$\frac{3}{x} = 6$$

$$\textcircled{1} \frac{5}{5} x = 9(5)$$

$$x = 45$$

$$c) \frac{3 \cdot 6}{r} = \frac{6}{1}$$

$$\frac{3 \cdot 6}{6} = r$$

$$\textcircled{2} \frac{3}{x} = 6x$$

$$\frac{3}{6} = \frac{6x}{6}$$

$$\frac{1}{2} = x$$

a) 36 b) 20 c) 6 d) 9.9

a) 0.3 b) $\frac{1}{3} = 0.3$ c) 0.6 d) 30

$$10 = \frac{3}{v}$$

$$v = \frac{3}{10}$$

$$12 = \frac{m}{3}$$

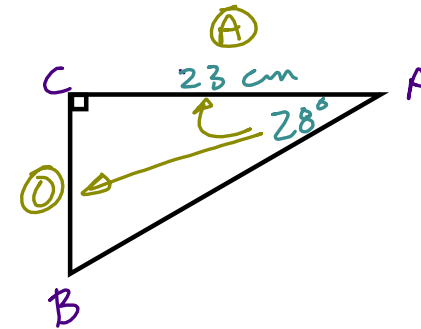
$$12(3) = m$$

$$36 = m$$

2.2 Finding Lengths with Tangent

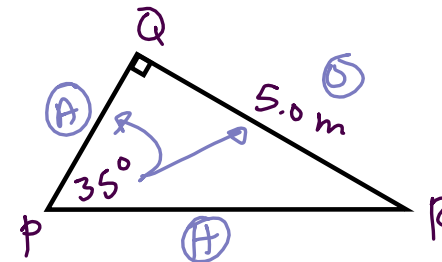
ex. Find the length of \overline{BC} to the nearest tenth of a unit.

$$\begin{aligned}\tan \angle 28^\circ &= \frac{\text{opp}}{23} \\ 23 \tan 28^\circ &= \text{opp.} \\ 12.2 &\doteq \text{opp} \\ \therefore \overline{BC} &\doteq 12.2\end{aligned}$$



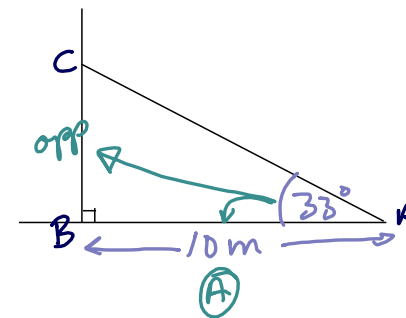
ex. Find the length of \overline{PQ} to the nearest tenth of a unit.

$$\begin{aligned}\tan 35^\circ &= \frac{5}{PQ} \\ PQ &= \frac{5}{\tan 35^\circ} \\ PQ &\doteq 7.1 \text{ cm}\end{aligned}$$



ex. A rope supports a vertical tent pole. The rope forms a 33° with the ground. Rope is staked into the ground 10 m from the base of the tent pole. Find height BC to the nearest tenth of a meter.

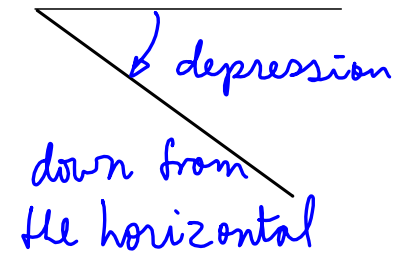
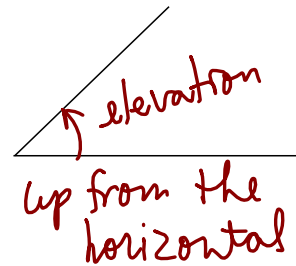
$$\begin{aligned}\tan \angle A &= \frac{\text{opp}}{\text{adj.}} \\ \tan 33^\circ &= \frac{BC}{10} \\ 10 \tan 33 &= BC \\ \overline{BC} &\doteq 6.5 \text{ m}\end{aligned}$$



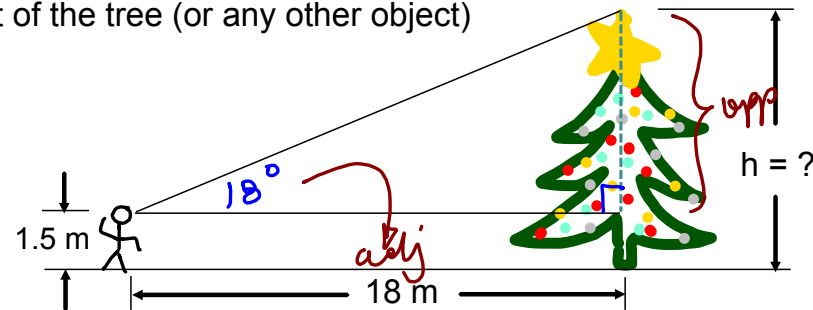
\therefore length BC is about 6.5 m

2.3 Measuring Heights indirectly

* A **clinometer** is a tool that measures angles of **elevation** and angles of **depression**



ex. Find the height of the tree (or any other object)



$$\tan 18^\circ = \frac{\text{opp}}{18}$$

$$18 \tan 18^\circ = \text{opp}$$

$$5.84 = \text{opp}$$

∴ the height of the tree is $5.84 + 1.5 \text{ m} = 7.3$ meters tall