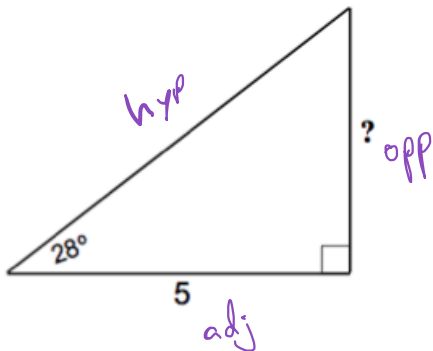


Steps to follow when using SOH CAH TOA

1. **Identify the angle** you are going to use.
2. **Label the sides** accordingly {opposite, adjacent, hypotenuse}
3. **Identify which side you know** (opp., adj., hyp.) and **which side you are looking for**.
4. Write down "**SOH - CAH - TOA**" and decide which one will work for the given problem.
5. Write down the **formula** (ex.: $\frac{\sin A}{1} = \frac{\text{opposite}}{\text{hypotenuse}}$)
6. **Plug-in** the values and **solve** for the missing piece.

1. Find the length of the edge marked '?' in each of the right triangles below.



$$\cancel{\frac{S}{H}} \quad \cancel{\frac{C}{H}} \quad T \frac{O}{A}$$

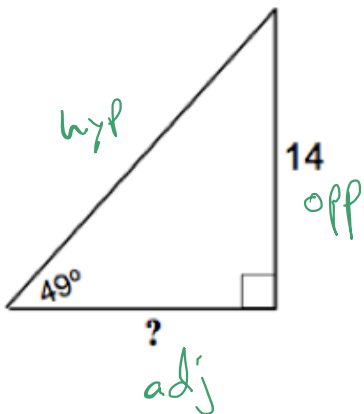
$$\frac{\tan 28}{1} = \frac{x}{5}$$

$$\frac{(5)\tan 28}{1} = x$$

$$2.65 = x$$

$$\text{round} = 2.7$$

2.



$$\cancel{\frac{S}{H}} \quad \cancel{\frac{C}{H}} \quad T \frac{O}{A}$$

$$\frac{\tan 49}{1} = \frac{14}{x}$$

$$\frac{14(1)}{\tan 49} = x$$

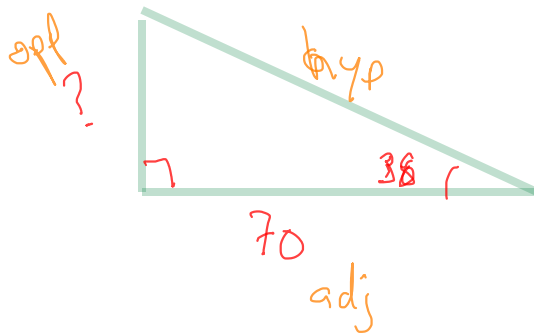
$$12.17 = x$$

$$\text{round} = 12.2$$

3. Sam is standing on level ground 70 m away from a tall tower.

From her position, the angle of elevation from the ground to the top of the tower is 38° .

What is the height of the tower?



$$\frac{O}{H} \quad \frac{A}{H} \quad \frac{T}{A}$$

$$\frac{\tan 38}{1} = \frac{x}{70}$$

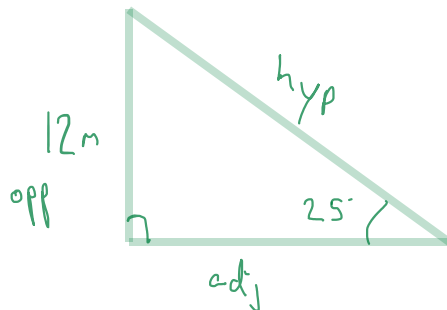
$$\frac{(70)\tan 38}{1} = x$$

$$54.68 = 54.7$$

4. A flagpole is 12 m tall.

An observer looks up at an angle of 25° to see the top of the pole.

How far is the observer from the foot of the flagpole?



$$\frac{O}{H} \quad \frac{A}{H} \quad \frac{T}{A}$$

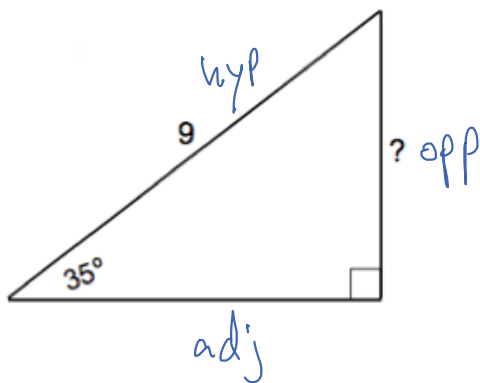
$$\frac{\tan 25}{1} = \frac{12}{x}$$

$$\frac{12(1)}{\tan 25} = x$$

$$25.73 = x$$

$$25.7$$

5. Find the length of the edge marked '?' in each of the right triangles below



$$\frac{O}{H} \quad \frac{A}{H} \quad \frac{T}{A}$$

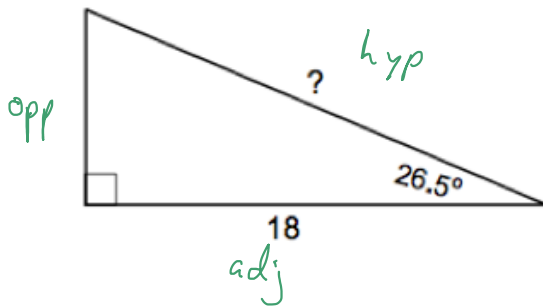
$$\frac{\sin 35}{1} = \frac{x}{9}$$

$$\frac{\sin 35(9)}{1} = x$$

$$5.1162 = x$$

$$5.2$$

6.



$$\frac{S}{H} \left(\frac{CA}{H} \right) T \frac{O}{A}$$

$$\frac{\cos 26.5}{1} = \frac{18}{x}$$

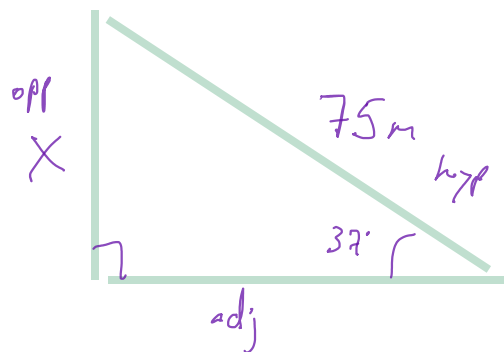
$$\frac{18(1)}{\cos 26.5} = x$$

$$20.11 = x$$

$$\boxed{20.1}$$

7. A kite string has a total length of 75 m.

Calculate the height at which the kite must be flying when the string is fully out and is making an angle of 37° with the level ground.



$$\frac{S}{H} \left(\frac{CA}{H} \right) T \frac{O}{A}$$

$$\frac{\sin 37}{1} = \frac{x}{75}$$

$$\frac{(75) \sin 37}{1} = x$$

$$45.13 = x$$

$$\boxed{45.1}$$