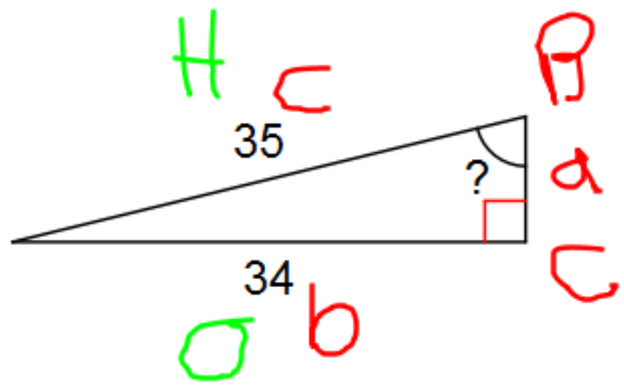
Solve the triangle. Communicate your solution carefully. Side: nearest tenth. Angle: nearest degree.

11)



H c B a C A a b

$A = 14^\circ$ $a = 8.3$

$B = 76^\circ$ $b = 34$

$C = 90^\circ$ $c = 35$

$a^2 + b^2 = c^2$

$a^2 + 34^2 = 35^2$

$a^2 + 1156 = 1225$ -1156 -1156

$\sqrt{a^2} = \sqrt{69}$

$a = 8.3$

$\sin B = \frac{O}{H}$

$\sin B = \frac{34}{35}$

$\sin B^{-1} = 0.9714^{-1}$

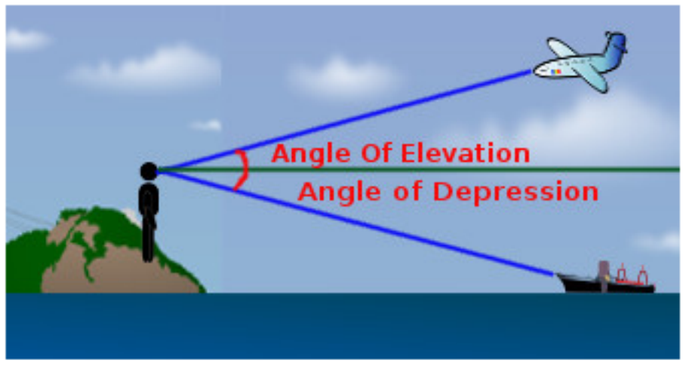
$\angle B = 76^\circ$

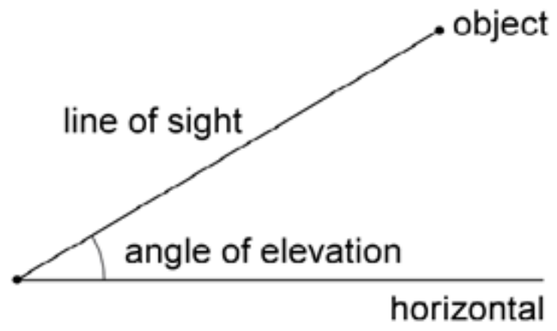
$\angle A = 180 - 76 - 90$

$\angle A = 14^\circ$

Angle Of Elevation

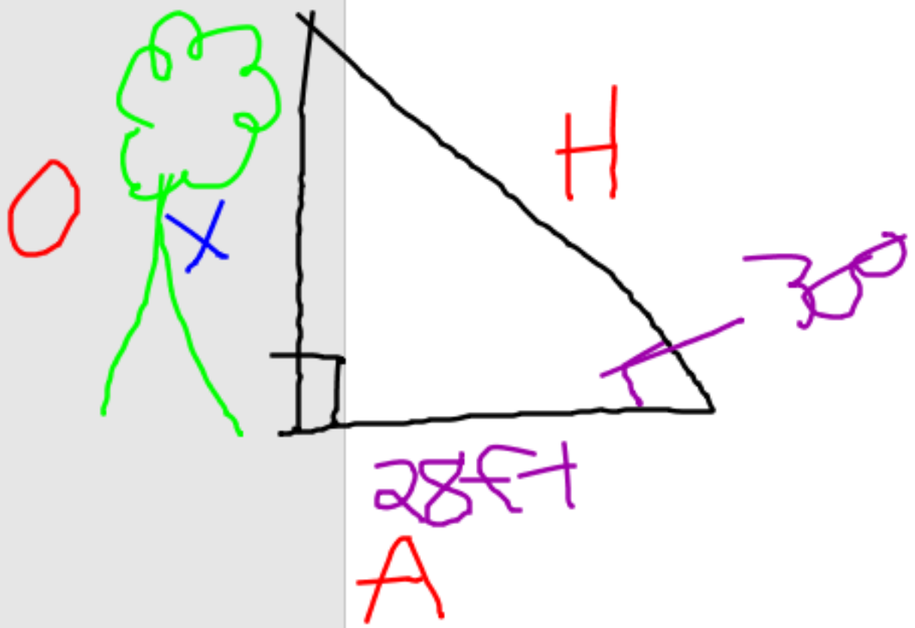
When you see an object above you there is an angle of elevation between the horizontal and your line of sight.





Let's Practise

The angle of elevation of the top of a tree is 30° from a point 28 ft away from the foot of the tree. Find the height of the tree rounded to the nearest feet.



$$\tan\theta = \frac{O}{A}$$

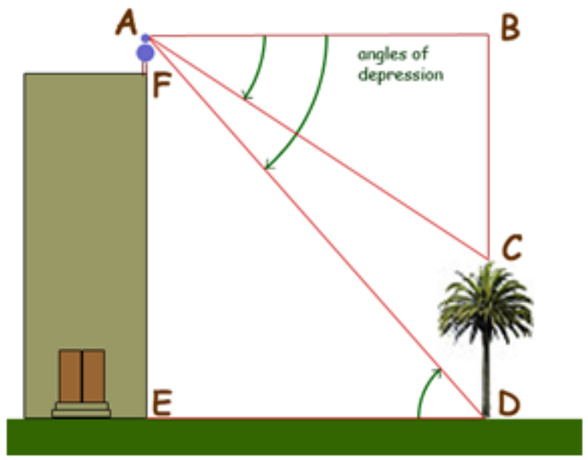
$$\tan 30 = \frac{x}{28}$$

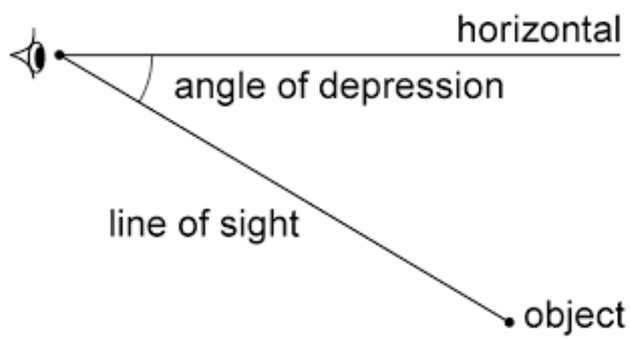
$$x = 16\text{ ft}$$

Angle Of Depression

When you see an object below you there is an angle of depression

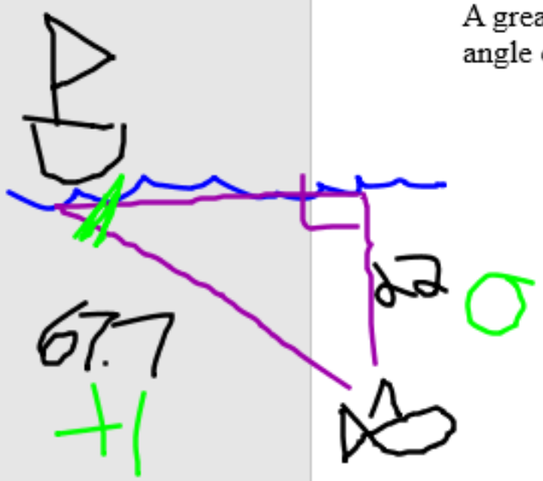
between the horizontal and your line of sight





Let's Practise

A great white shark swims 22ft below sea level. If the shark is 67.7 feet from the sailboat, what is the angle of depression of the boat to the shark?



$$\sin\theta = \frac{O}{H}$$

$$\sin\theta = \frac{22}{67.7}$$

$$\sin\theta = 0.3250$$

$$\theta = 19^\circ$$

Angle of Elevation and Depression

Practise Word Problems

Name: _____

1. A nursery plants a new tree and attaches a guy wire to help support the tree while its roots take hold. An 8 meter wire is attached to the tree and to a stake in the ground. From the stake in the ground the angle of elevation of the connection with the tree is 42º. Find to the *nearest tenth of a meter*, the height of the connection point on the tree.

2. From the top of a fire tower, a forest ranger sees his partner on the ground at an angle of depression of 40º. If the tower is 45 meter in height, how far is the partner from the base of the tower, to the *nearest tenth of a meter*?

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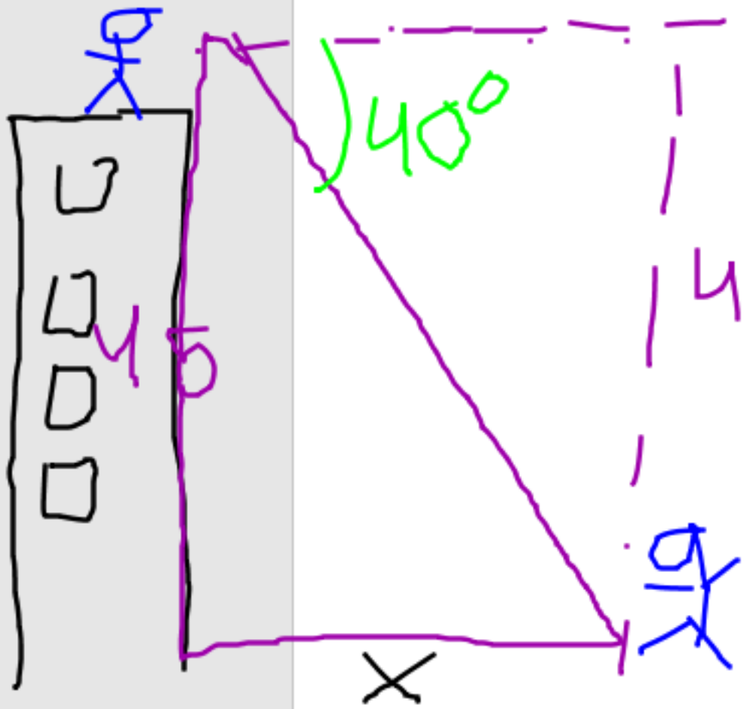

3. Find the shadow cast by a 10 foot lamp post when the angle of elevation of the sun is 58º. Find the length to the *nearest tenth of a foot.*

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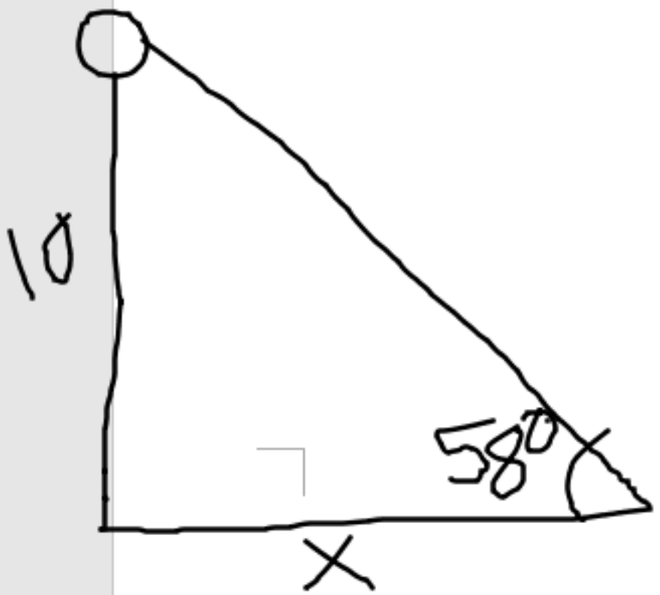

4. A ladder leans against a brick wall. The foot of the ladder is 6 feet from the wall. The ladder reaches a height of 15 feet on the wall. Find to the *nearest degree*, the angle the ladder makes with the wall.