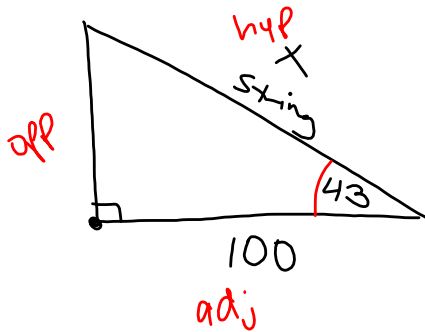


DO NOW

Henry flies a kite. Find the length of the kite's string when it makes an angle of 43° with the ground at a point 100 ft from a point directly below the kite.

Round to nearest tenth of a foot



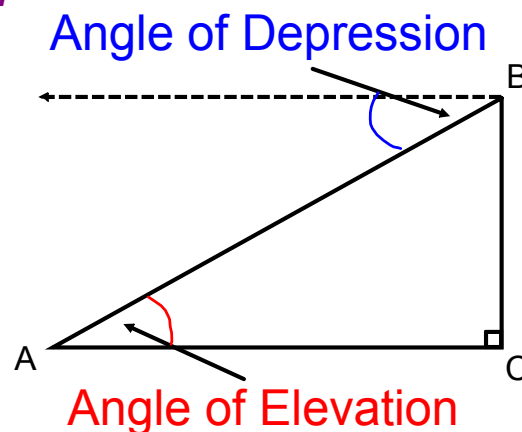
$$x \cdot \cos 43 = \frac{100}{x} \cdot x$$

$$\frac{x (\cancel{\cos 43})}{(\cancel{\cos 43})} = \frac{100}{(\cos 43)}$$

$$x = 136.7 \text{ ft}$$

Jan 6-7:55 AM

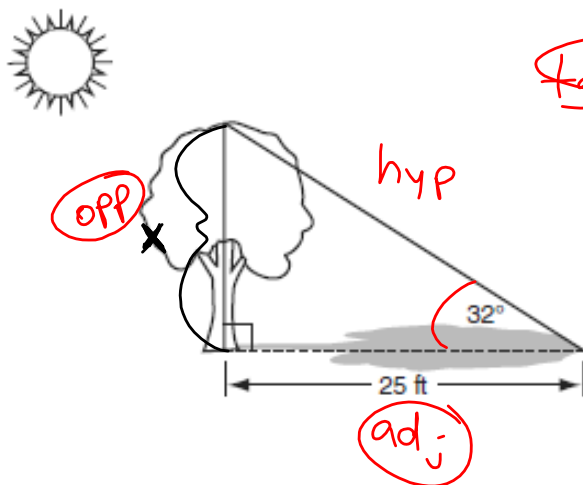
Sometimes, the measured angle in a triangle is called the *angle of elevation* or the *angle of depression*



Angle of Elevation and Angle of Depression are EQUAL!!

Jan 6-7:58 AM

A tree casts a 25-foot shadow on a sunny day, as shown in the diagram below. If the angle of elevation from the tip of the shadow to the top of the tree is 32° , what is the height of the tree to the nearest tenth of a foot?



$$\cancel{\tan 32 = \frac{x}{25}}$$

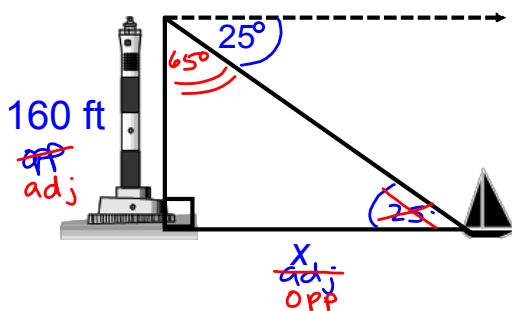
$$x = 25(\tan 32)$$

$$x = 15.621\dots$$

$$\boxed{x = 15.6}$$

Jan 6-8:12 AM

From the top of a lighthouse 160 feet above sea level, the angle of depression to a boat at sea is 25° . To the nearest foot, what is the horizontal distance from the boat to the base of the lighthouse?



$$\tan 65 = \frac{x}{160}$$

$$x = 343.121$$

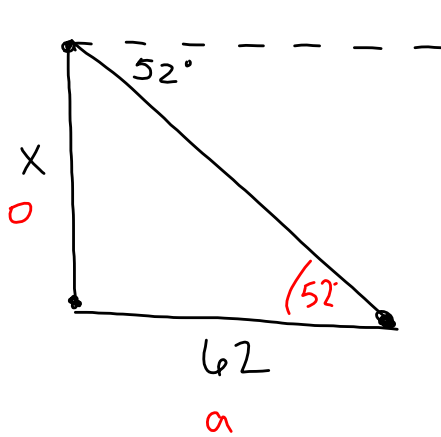
$$\boxed{343 \text{ ft}}$$

$$x \cdot \tan 25 = \frac{160}{x}$$

$$\frac{x(\tan 25)}{(\tan 25)} = \frac{160}{(\tan 25)}$$

Jan 6-8:19 AM

A person measures the angle of depression from the top of a wall to a point on the ground. The point is located on level ground 62 feet from the base of the wall and the angle of depression is 52° . How high is the wall, to the nearest tenth of a foot?



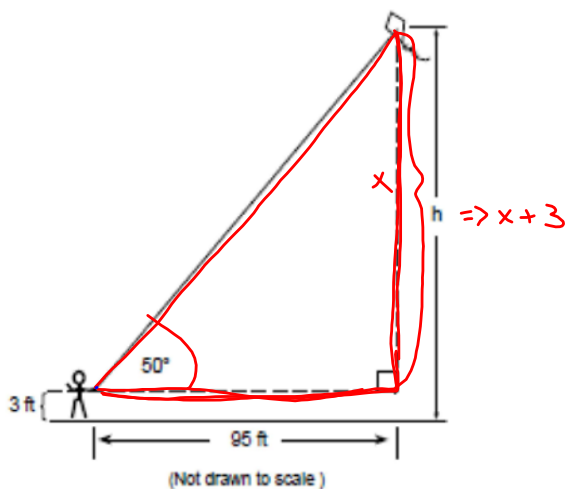
$$62 \cdot \tan 52 = \frac{x}{\cancel{62} \cdot \cancel{62}}$$

$$79.356 = x$$

$$\boxed{79.4}$$

Jan 6-8:17 AM

Joe is holding his kite string 3 feet above the ground, as shown in the accompanying diagram. The distance between his hand and a point directly under the kite is 95 feet. If the angle of elevation to the kite is 50° , find the height, h , of his kite, to the nearest foot.



$$\tan 50 = \frac{x}{95}$$

$$x = 113.2165 \dots$$

$$\frac{\quad}{\quad} \\ \boxed{116 \text{ ft}}$$

Jan 23-8:32 AM