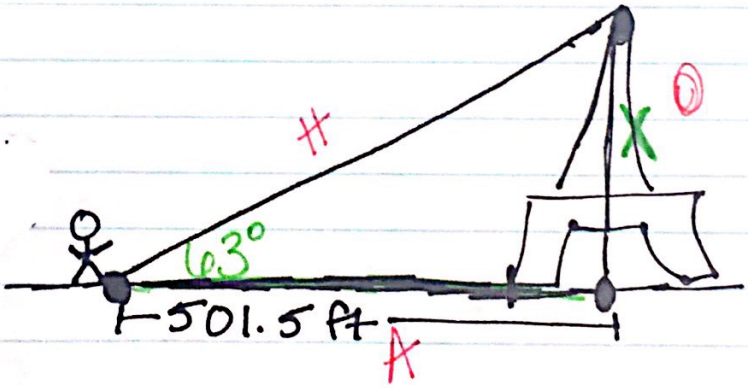
Angle of Elevation:

↳ Angle of elevation from ground to the top of the tree

Ex) To measure the height of the Eiffel Tower, Pierre stands 501.5 ft from the base and finds the angle of elevation to the top of the tower is 63°. What is the height of the tower?

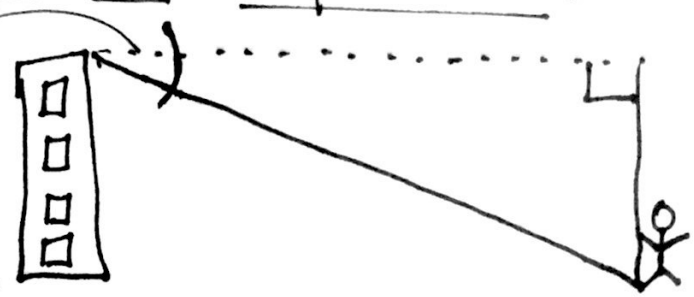


$$501.5 \cdot \tan(63) = \frac{X}{501.5} \cdot 501.5$$

$$X = 501.5 \cdot \tan(63)$$

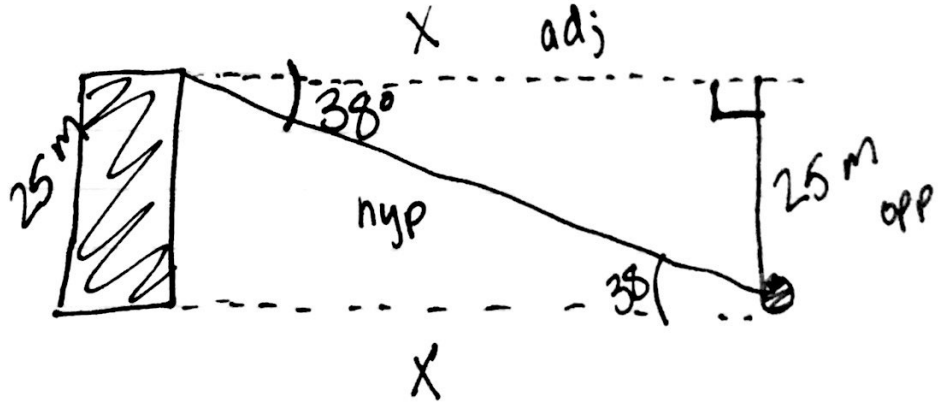
$$X = 984.2 \text{ ft}$$

Angle of Depression:



Angle of depression from top of building to ground where person is standing

Ex) The angle of depression from the top of a tower to a boulder on the ground is 38°. The tower is 25 m high. How far is the base of the tower from the boulder?



$$X \tan(38) = \frac{25}{X} \cdot X$$

$$\frac{X \tan(38)}{\tan(38)} = \frac{25}{\tan(38)}$$

$X = 32$ m