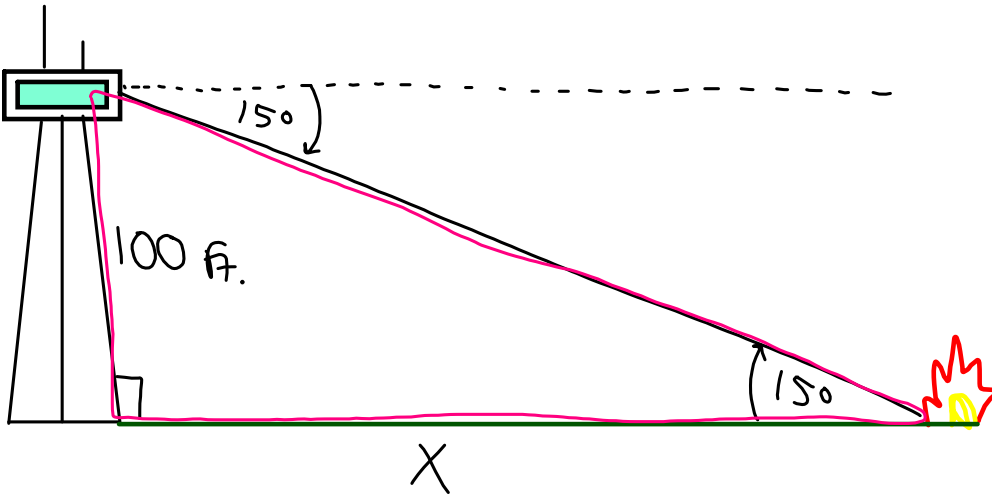


**Warm - Up**

A forest ranger looking out from a ranger's station can see a forest fire at a  $15^\circ$  angle of depression. The ranger's position is 100 ft. above the ground. How far from the base of the ranger's station is it to the fire?



Apr 6-6:54 AM

**Example 4**

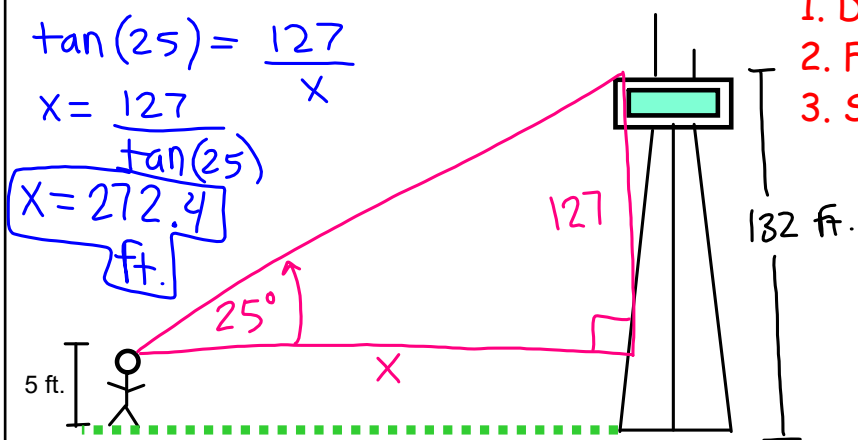
A person whose eyes are 5 feet above the ground is standing on the runway of an airport. That person observes an air traffic controller at the window of the 132 ft. control tower at an angle of elevation of  $25^\circ$ . What is the distance the person is from the tower?

$$\tan(25) = \frac{127}{x}$$

$$x = \frac{127}{\tan(25)}$$

$x = 272.4$  ft.

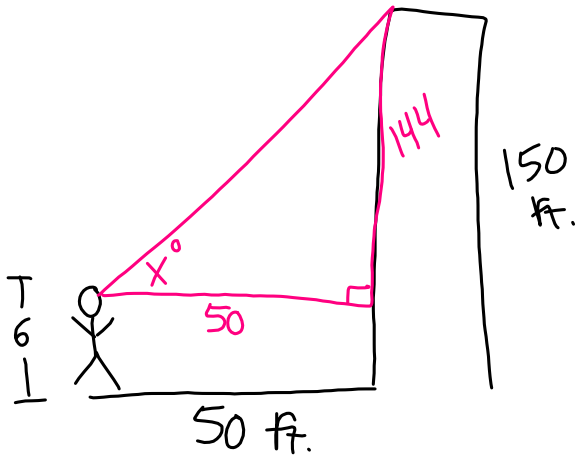
1. Draw a right triangle
2. Fill in the information
3. Solve for the triangle



Apr 17-11:42 PM

### Example 3

A 6 foot tall man is staring at the top of a building. If the building is 150 feet tall and the man is 50 feet away from the building, at what angle of elevation is the man lifting his head at?



$$\tan X = \frac{144}{50}$$

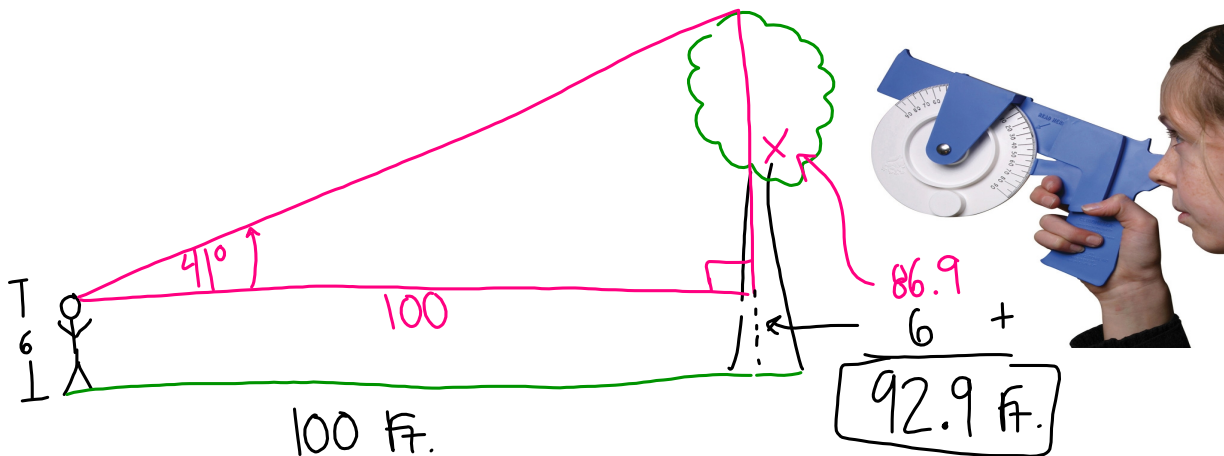
$$X = \tan^{-1}\left(\frac{144}{50}\right)$$

$$X = 71^\circ$$

Apr 17-11:42 PM

### Real-Life Situation!!!

You (who is 6 feet tall) want to cut down a tall tree in your backyard. The tree is exactly 100 feet away from the nearest corner of your house. You are unsure if the tree will fall towards your house when you cut it. Using a clinometer you measure the angle of elevation from the the house to the top of the highest point of the tree as  $41^\circ$ . Will the tree land on your house if it falls towards it when cut down? Justify your answer. (Draw a diagram first)



Apr 25-12:04 PM