## Answer on Question \#48278, Physics, Optics

A person stands 40 m from a flag pole. With a protractor at eye level, he finds the angle at the top of the flag pole with the horizontal is 25.0 degrees. How high is the flag pole? The distance from his feet to his eyes is 1.8 m .

## Solution:



From the right triangle $A B C$ we can find the distance $B C$ (we know the angle and we know the distance $A B=40 \mathrm{~m}$ ):

$$
B C=A B \tan 25^{\circ}=40 * \tan 25^{\circ}=18.65 \mathrm{~m}
$$

The distance $O B$ is equal to the height of the person (which is 1.8 m ). Then we can find the whole height of the pole:

Height of the flag pole $=O C=O B+B C=1.8+18.65=20.45 \mathrm{~m}$
Answer: Height of the flag pole $=20.45 \mathrm{~m}$

