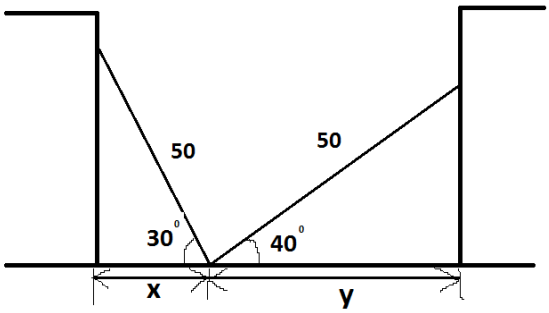
Answer on Question #43733, Math, Trigonometry

Task:

A ladder with its foot in the street makes an angle of 30 degrees with the street when its top rests on a building on one side of the street and makes an angle of 40 degrees with the street when its to rests on a building on the other side of the street.If the ladder is 50 feet long,how wide is the street?

Solution:



We have to find the sum x+y. It is the width of the street. Both triangles on the picture are right.

We can find from the picture that:

$$\cos 30 = \frac{x}{50}$$

$$\cos 40 = \frac{y}{50}$$

So,

$$x = 50 * \cos 30 = 43{,}3(ft.)$$

$$y = 50 * \cos 40 = 38{,}3(ft.)$$

We get:

$$x + y = 43{,}3 + 38{,}3 = 81{,}6 \approx 82(ft.)$$

Answer:

82 ft.