

A ladder 9.00m long leans against the side of a building .If the ladder is inclined at an angle of 75.0 to the horizontal,what is the horizontal distance from the bottom of the ladder to the building?

Solution:

$\alpha = 75^\circ$ – the angle at which the ladder is inclined to the horizontal;

$L = 9.00\text{m}$ – length of the ladder;

d – horizontal distance from the bottom of the ladder to the building.

Cosine of the angle alpha from the right triangle ABC:

$$\cos \alpha = \frac{BC}{AB} = \frac{d}{L}$$

$$d = L \cdot \cos \alpha = 9.00\text{m} \cdot \cos 75^\circ = 2.33\text{m}$$

Answer: horizontal distance from the bottom of the ladder to the building is 2.33m

