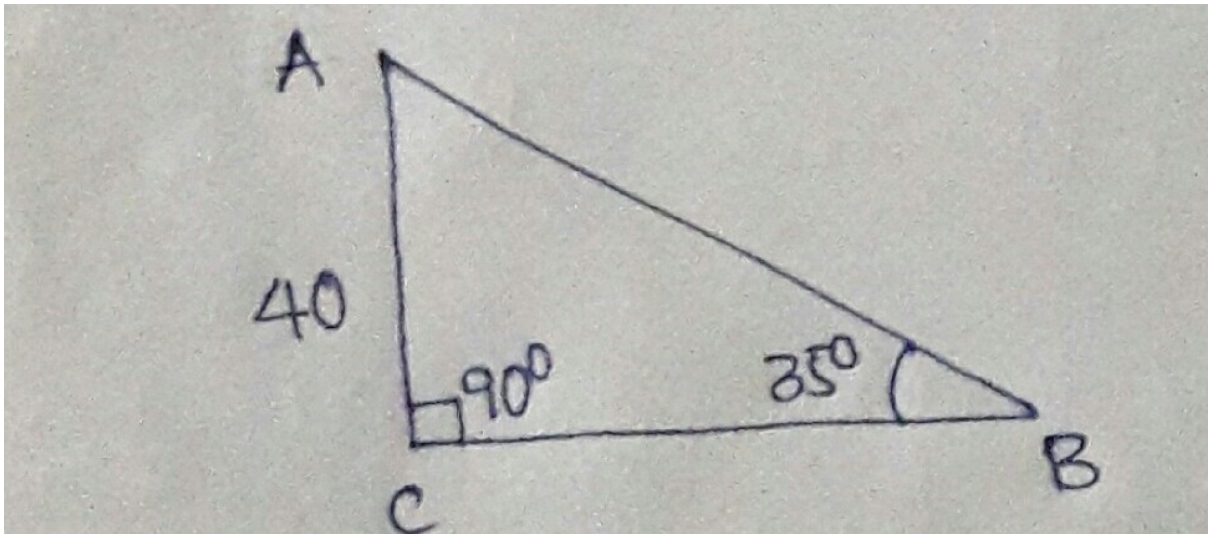
Answer to Question #88272 – Math – Trigonometry

Question

A man on the fifth floor of a building shouts down to a person on the street. If the angle of elevation from the street to the man in the building is 35° and the man in the building is 40 feet up, about how far away from the building is the person on the street?

Solution



Let AC be the height of the building in which a man shouted.

Given that he is at height of 40 feet

implies AC = 40 ft.

Assume that the other man is at B, who is away from the building.

The angle of elevation of B is 35 degrees.

Let CB be the distance between the man and the building.

From the triangle ABC, $\tan(35^\circ) = AC/BC$.

By cross multiplication we have $BC = AC/\tan(35^\circ)$

$= 40/\tan(35^\circ)$

$= 40/0.7002$ (Since $\tan(35^\circ) = 0.7002$)

$= 57.127$

Therefore, BC = 57.13 feet.

The man is 57.13 feet away from the building.

Answer: 57.13 feet.