

Trigonometry Worksheets

Find the missing angle

Shelves are being built in a classroom to hold textbooks and other supplies. The shelves will extend 10 in. from the wall. Support braces will need to be installed to secure the shelves. The braces will be attached to the end of the shelf and secured 6 in. below the shelf on the wall. What angle measure will the brace and the shelf make?

A 16 ft. ladder leans against a wall. The foot of the ladder is 7 ft. from the wall.

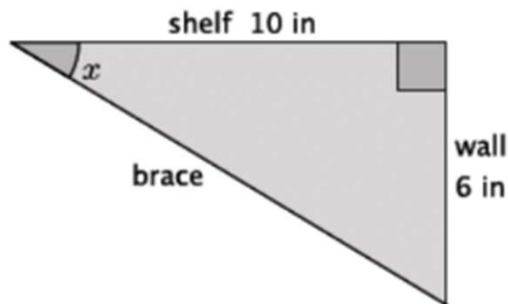
a. Find the vertical distance from the ground to the point where the top of the ladder touches the wall.

b. Determine the measure of the angle formed by the ladder and the ground.

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$$\arctan\left(\frac{6}{10}\right) \approx 31$$

The angle measure between the brace and the shelf is 31° .

A 16 ft. ladder leans against a wall. The foot of the ladder is 7 ft. from the wall.

a. Find the vertical distance from the ground to the point where the top of the ladder touches the wall.

Let x represent the distance from the ground to the point where the top of the ladder touches the wall.

$$\begin{aligned}16^2 &= 7^2 + x^2 \\16^2 - 7^2 &= x^2 \\207 &= x^2 \\14 &\approx x\end{aligned}$$

The top of the ladder is 14 ft. above the ground.

b. Determine the measure of the angle formed by the ladder and the ground.

$$\arccos\left(\frac{7}{16}\right) \approx 64$$

The angle formed by the ladder and the ground is approximately 64° .

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