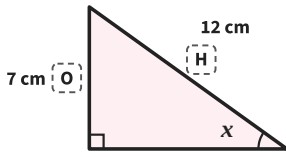


Trigonometry: Finding an Angle

ANSWERS

1 Label only the two sides you use.

Find angle x to 1 decimal place.



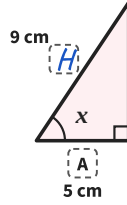
SOH CAH TOA

$$\sin x = \frac{7}{12}$$

$$x = \sin^{-1} \frac{7}{12}$$

$$x = 35.7^\circ$$

2 Find angle x to 1 decimal place.



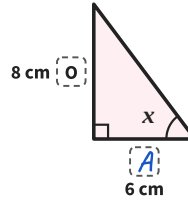
SOH CAH TOA

$$\cos x = \frac{5}{9}$$

$$x = \cos^{-1} \frac{5}{9}$$

$$x = 56.3^\circ$$

3 Find angle x to 1 decimal place.



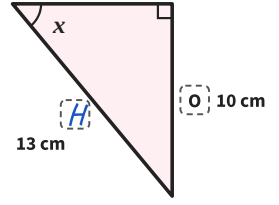
SOH CAH TOA

$$\tan x = \frac{8}{6}$$

$$x = \tan^{-1} \frac{8}{6}$$

$$x = 53.1^\circ$$

4 Find angle x to 1 decimal place.



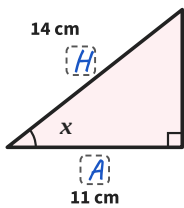
SOH CAH TOA

$$\sin x = \frac{10}{13}$$

$$x = \sin^{-1} \frac{10}{13}$$

$$x = 50.3^\circ$$

5 Find angle x to 1 decimal place.

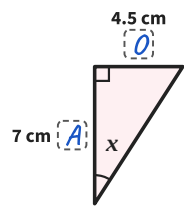


$$\cos x = \frac{11}{14}$$

$$x = \cos^{-1} \frac{11}{14}$$

$$x = 38.2^\circ$$

6 Find angle x to 1 decimal place.



$$\tan x = \frac{4.5}{7}$$

$$x = \tan^{-1} \frac{4.5}{7}$$

$$x = 32.7^\circ$$

7 The 5 m arm of a crane reaches 4.6 m above its pivot. What angle does the arm make with the horizontal? Give your answer to 1 decimal place.

$$\sin^{-1}(4.6 \div 5)$$

$$\text{Answer } 66.9^\circ$$

8 A ramp rises 1 m over a horizontal distance of 12 m. Find the angle of the ramp to 1 decimal place.

$$\tan^{-1}(1 \div 12)$$

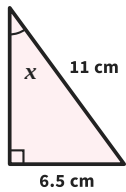
$$\text{Answer } 4.8^\circ$$

Trigonometry: Finding an Angle *further practice*

ANSWERS

9

Find angle x to 1 decimal place.



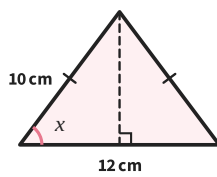
$$\sin x = 6.5 \div 11$$

$$x = \sin^{-1}(6.5 \div 11)$$

$$x = 36.2^\circ$$

10

The triangle is isosceles. Find angle x to 1 decimal place.



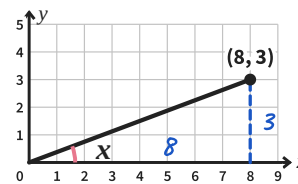
$$\text{half the base is } 6 \text{ cm}$$

$$\cos x = 6 \div 10$$

$$x = 53.1^\circ$$

11

The line goes from (0, 0) to (8, 3). Find the angle x it makes with the x axis, to 1 decimal place.



$$\tan x = 3 \div 8$$

$$x = 20.6^\circ$$

12

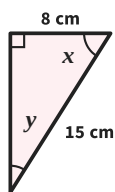
A flagpole 9 m tall stands on level ground. A straight wire runs from the top of the pole to a peg in the ground 14 m from its foot. Find the angle between the wire and the ground, to 1 decimal place.

$$\tan x = 9 \div 14$$

$$\text{Answer } 32.7^\circ$$

13

Find angles x and y to 1 decimal place.



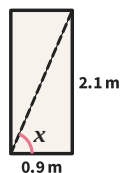
$$\cos x = 8 \div 15, x = 57.8^\circ$$

$$y = 90 - 57.8$$

$$\text{Answer } x = 57.8^\circ, y = 32.2^\circ$$

14

A door is 2.1 m tall and 0.9 m wide. Find the angle x between its diagonal and the bottom edge, to 1 decimal place.

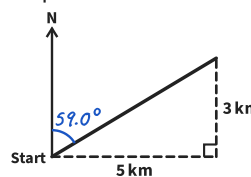


$$\tan x = 2.1 \div 0.9$$

$$x = 66.8^\circ$$

15

A boat sails 5 km east, then 3 km north. Find the bearing of the boat from where it started, to 1 decimal place.



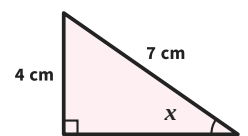
$$\tan^{-1}(3 \div 5) = 31.0^\circ$$

$$90 - 31.0 = 59.0$$

$$\text{Bearing } 059.0^\circ$$

16

Zara writes $\sin x = 7 \div 4$. Explain why Zara must be wrong, then find x .



the hypotenuse is the longest side, so

$$\sin x \text{ is less than } 1: \sin x = 4 \div 7$$

$$x = 34.8^\circ$$