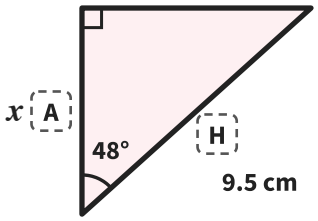
Trigonometry: Finding a Side with Cos

ANSWERS

1

Find x to 2 decimal places.



cos [48] ° = [x] / [9.5]

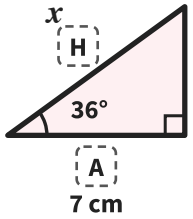
Make the unknown the subject of the formula.

$x = 9.5 \times \cos 48°$

$x =$ 6.36 cm

2

Find x to 2 decimal places.



cos [36] ° = [7] / [x]

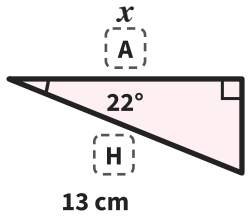
Make the unknown the subject of the formula.

$x = 7 \div \cos 36°$

$x =$ 8.65 cm

3

Find x to 2 decimal places.



cos [22] ° = [x] / [13]

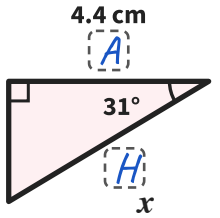
Make the unknown the subject of the formula.

$x = 13 \times \cos 22°$

$x =$ 12.05 cm

4

Label A and H, then find x to 2 decimal places.



cos [31] ° = [4.4] / [x]

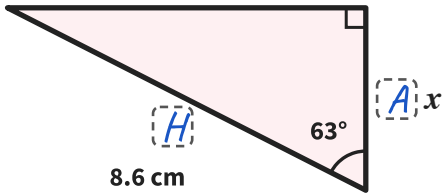
Make the unknown the subject of the formula.

$x = 4.4 \div \cos 31°$

$x =$ 5.13 cm

5

Label A and H, then find x to 2 decimal places.



cos [63] ° = [x] / [8.6]

Make the unknown the subject of the formula.

$x = 8.6 \times \cos 63°$

$x =$ 3.90 cm

6

The hypotenuse is 12 cm and the angle is 27°. To find the adjacent, Leo works out 12 × sin 27° and gets 5.45 cm. Explain Leo's mistake, then find the adjacent to 2 decimal places.

A and H: use cos, not sin

$x = 12 \times \cos 27°$

Answer 10.69 cm

7

A swing hangs from chains 2.4 m long. It is pulled back so the chains make an angle of 35° with the vertical. How far below the top bar is the seat now? Give your answer to 2 decimal places.

$\cos 35° = \frac{x}{2.4}$

$x = 2.4 \times \cos 35°$

Answer 1.97 m

8

A drawbridge is raised to 38° above the horizontal. Its far end is now 7.5 m from the hinge, measured horizontally. How long is the drawbridge? Give your answer to 2 decimal places.

$\cos 38° = \frac{7.5}{x}$

$x = 7.5 \div \cos 38°$

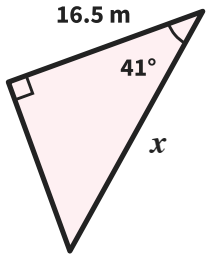
Answer 9.52 m

Trigonometry: Finding a Side with Cos *further practice*

ANSWERS

9

Find x to 2 decimal places.



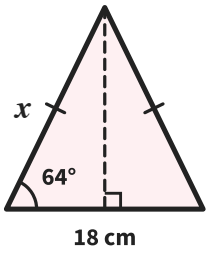
$\cos 41° = \frac{16.5}{x}$

$x = 16.5 \div \cos 41°$

$x =$ 21.86 m

10

The triangle is isosceles and its base is 18 cm. Find the length of each of its equal sides, x, to 2 decimal places.



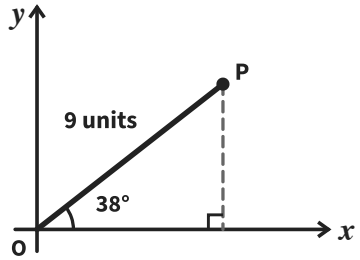
half the base = 9

$x = 9 \div \cos 64°$

$x =$ 20.53 cm

11

The line OP is 9 units long. It makes an angle of 38° with the x axis. Find the x coordinate of P, to 2 decimal places.



$\cos 38° = \frac{x}{9}$

$x = 9 \times \cos 38°$

$x =$ 7.09

12

A hot air balloon is tied to the ground by a straight rope at 62° to the ground. The point directly below the balloon is 45 m from where the rope is tied. How long is the rope? Give your answer to 2 decimal places.

$\cos 62° = \frac{45}{x}$

$x = 45 \div \cos 62°$

Answer 95.85 m

13

A straight ski lift cable is 850 m long and rises at 24° to the horizontal. A map says the two stations are 760 m apart, measured horizontally. Is the map right? Show how you know.

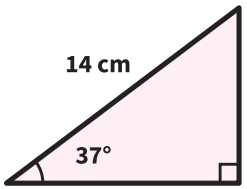
$x = 850 \times \cos 24°$

$x = 776.51$

Answer No, it is 776.51 m

14

Find the perimeter of the triangle, to 2 decimal places.



$A = 14 \times \cos 37° = 11.181$

$O = 14 \times \sin 37° = 8.425$

Perimeter 33.61 cm

15

Boat A sails 18 km on a bearing of 040°. Boat B sails 22 km on a bearing of 055°. They start from the same harbour. Which boat ends up further north, and by how much? Give your answer to 2 decimal places.

A: $18 \times \cos 40° = 13.79$

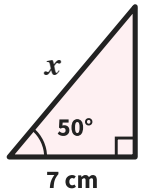
B: $22 \times \cos 55° = 12.62$

Answer A, by 1.17 km

16

Sam writes $\cos 50° = \frac{x}{7}$, so **x = 4.50 cm.**

Explain how you know Sam is wrong. Then find x to 2 decimal places.



x is H, so x goes on the bottom

so x must be more than 7 cm

$x =$ 10.89 cm