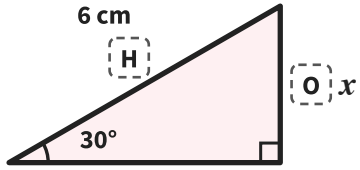
Exact trig values

ANSWERS

1

Find x. Do not use a calculator.



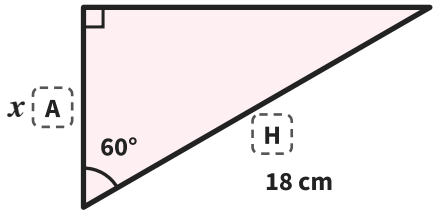
$x =$ 6 × sin 30°

$= 6 \times \frac{1}{2}$

$x =$ 3 cm

2

Find x. Do not use a calculator.



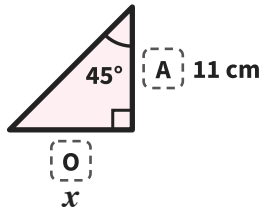
$x =$ 18 × cos 60°

$= 18 \times \frac{1}{2}$

$x =$ 9 cm

3

Find x. Do not use a calculator.



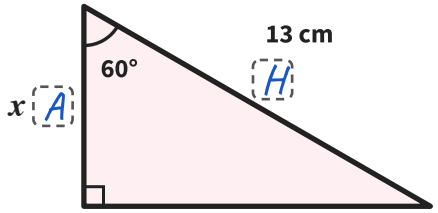
$x =$ 11 × tan 45°

$= 11 \times \frac{1}{1}$

$x =$ 11 cm

4

Label A and H, then find x. Do not use a calculator.



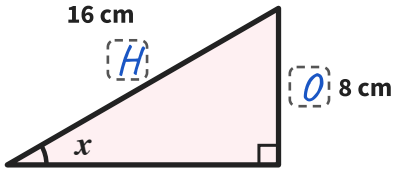
$x =$ 13 × cos 60°

$= 13 \times \frac{1}{2}$

$x =$ 6.5 cm

5

Find the angle x. Do not use a calculator.



$\sin x = \frac{8}{16} = \frac{1}{2}$

$\sin 30° = \frac{1}{2}$

$x =$ 30°

6

Write down the value of each.

$\sin 0° =$ 0

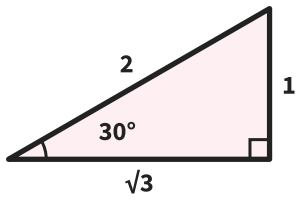
$\cos 0° =$ 1

$\sin 90° =$ 1

$\cos 90° =$ 0

7

Kai says $\sin 30° = \frac{\sqrt{3}}{2}$. Use the triangle to explain his mistake.



sin is O over H: the opposite is 1, not √3

√3 over 2 is cos 30°

sin 30° = ½

8

A straight hiking path climbs at 30° to the horizontal. Mia walks 800 m along it. How much height does she gain? Do not use a calculator.

height = 800 × sin 30°

$= 800 \times \frac{1}{2}$

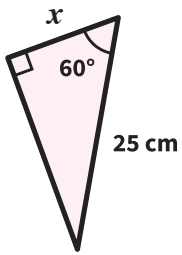
Answer 400 m

Exact trig values *further practice*

ANSWERS

9

Find x. Do not use a calculator.



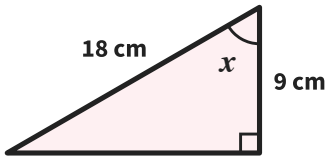
$x = 25 \times \cos 60°$

$x = 25 \times \frac{1}{2}$

$x =$ 12.5 cm

10

Find the angle x. Do not use a calculator.



$\cos x = \frac{9}{18} = \frac{1}{2}$

$\cos 60° = ½$

$x =$ 60°

11

x is from 0° to 90°. Find x when

(a) $\sin x = \frac{\sqrt{3}}{2}$

(b) $\cos x = 1$

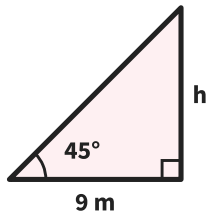
(a) $\sin 60° = \frac{\sqrt{3}}{2}$

(b) $\cos 0° = 1$

Answer (a) 60° (b) 0°

12

The sun is 45° above the horizon.
A flagpole's shadow is 9 m long.
How tall is the flagpole? Do not use a calculator.



$h = 9 \times \tan 45°$

$h = 9 \times 1$

Answer 9 m

13

A ski lift chair travels 400 m along its straight cable and rises 200 m.
Find the angle between the cable and the horizontal. Do not use a calculator.

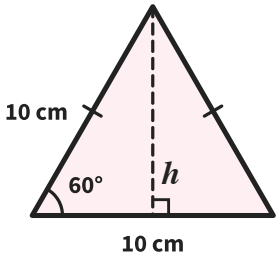
$\sin x = \frac{200}{400} = \frac{1}{2}$

$\sin 30° = ½$

Answer 30°

14

An equilateral triangle has sides of 10 cm. Find its height h.
Give your answer as an exact value.



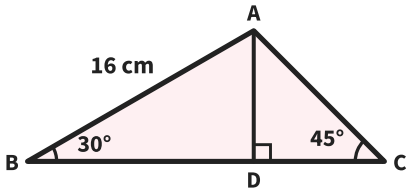
$h = 10 \times \sin 60°$

$h = 10 \times \frac{\sqrt{3}}{2}$

$h =$ $5\sqrt{3}$ cm

15

Find AD, then find DC. Do not use a calculator.



$AD = 16 \times \sin 30° = 8$

$\tan 45° = 1$, so $DC = AD$

DC = 8 cm

16

Ana says that as an angle goes up from 0° to 90°, its cos gets bigger.
Use exact values to show that Ana is wrong.

$\cos 0° = 1$, $\cos 60° = \frac{1}{2}$, $\cos 90° = 0$

cos gets smaller, not bigger

Answer Ana is wrong