

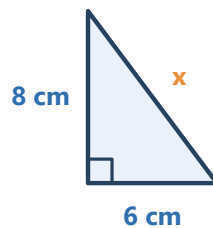
GCSE Maths Pythagoras and Trigonometry (Higher): check-up and exam-style questions: answers

GCSE Maths - Pythagoras and Trigonometry - Higher - Test yourself

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch20-pythagoras-trigonometry/higher/check-up-and-exam-style-questions/

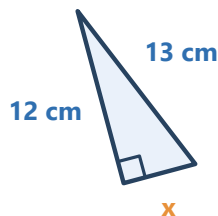
Exercise 20Z Check-up (non-calculator) Non-calculator

- 1 Work out the length of the hypotenuse, x .



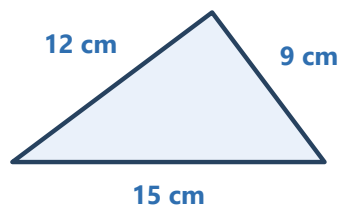
Answer: 10 cm

- 2 Work out the length of the shorter side, x .



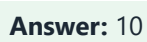
Answer: 5 cm

- 3 Is a triangle with sides 9 cm, 12 cm and 15 cm right-angled? Show your working.



Answer: Yes, it is right-angled

- 4 Work out the distance between A(1, 1) and B(7, 9).



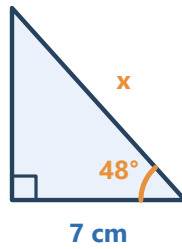
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Answer: 120 cm^2

-

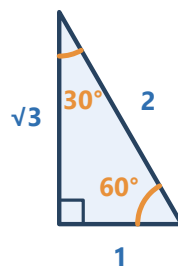
Answer: hypotenuse BC, opposite AC, adjacent AB

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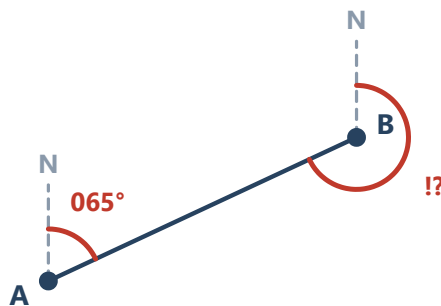
Answer: $\cos 48^\circ = \frac{7}{x}$

- 8 Work out the exact value of $\sin 30^\circ + \cos 60^\circ$.



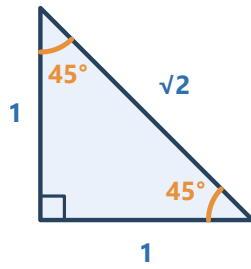
Answer: 1

- 9 The bearing of B from A is 065° . Work out the bearing of A from B.



Answer: 245°

- 10 Write down the exact values of $\tan 45^\circ$ and $\sin 60^\circ$.



(a) $\tan 45^\circ$

Answer: 1

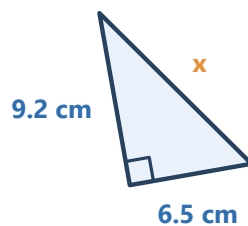
(b) $\sin 60^\circ$

Answer: $\frac{\sqrt{3}}{2}$

Exercise 20X Exam-style questions Non-calculator

1 Work out the length of x . Give your answer correct to 1 decimal place.

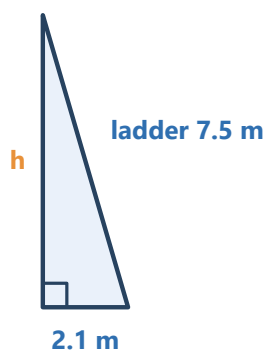
[2 marks]



Answer: 11.3 cm

2 A ladder of length 7.5 m rests against a vertical wall with its foot on level ground, 2.1 m from the wall. Work out how high up the wall the ladder reaches.

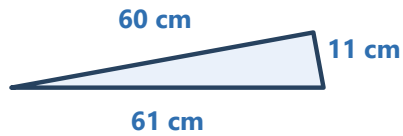
[3 marks]



Answer: 7.2 m

3 A triangle has sides of length 11 cm, 60 cm and 61 cm. Is the triangle right-angled? You must show how you decide.

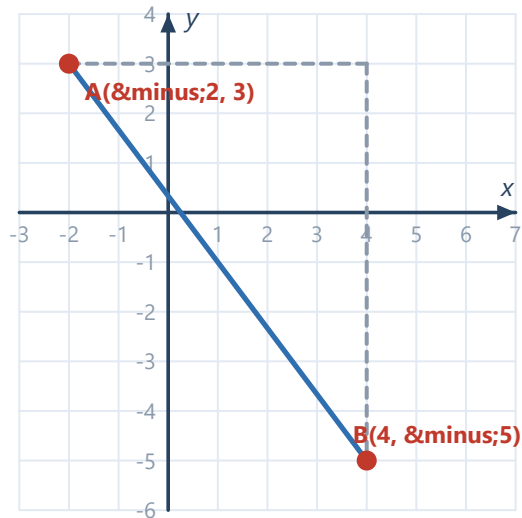
[3 marks]



Answer: Yes, it is right-angled

- 4 A is the point $(-2, 3)$ and B is the point $(4, -5)$. Work out the length of AB.

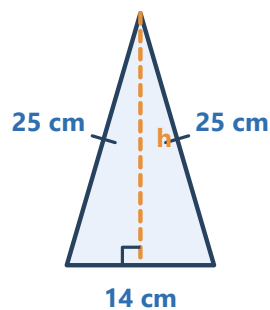
[3 marks]



Answer: 10

- 5 An isosceles triangle has equal sides of 25 cm and a base of 14 cm. Work out the area of the triangle.

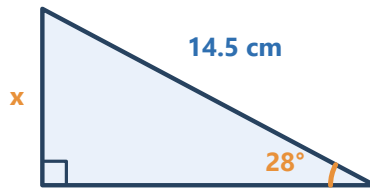
[3 marks]



Answer: 168 cm^2

- 6 Work out the length of x . Give your answer correct to 1 decimal place.

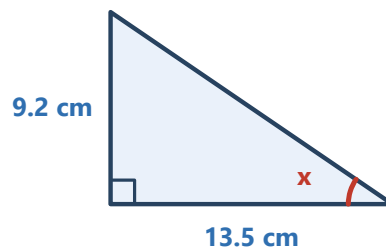
[2 marks]



Answer: 6.8 cm

- 7 Work out the size of angle x . Give your answer correct to 1 decimal place.

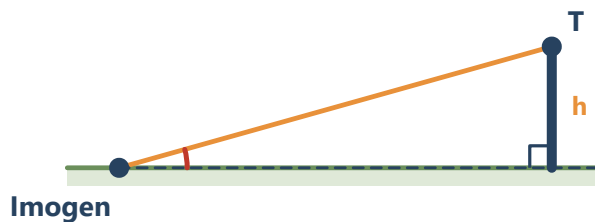
[3 marks]



Answer: 34.3°

- 8 From a point 40 m from the foot of a vertical building on level ground, the angle of elevation of the top of the building is 35° . (a) Work out the height of the building, correct to 1 decimal place. (b) Imogen stands 100 m from the foot of the building. Work out the angle of elevation of the top of the building from Imogen, correct to 1 decimal place.

[4 marks]



- (a) (a)

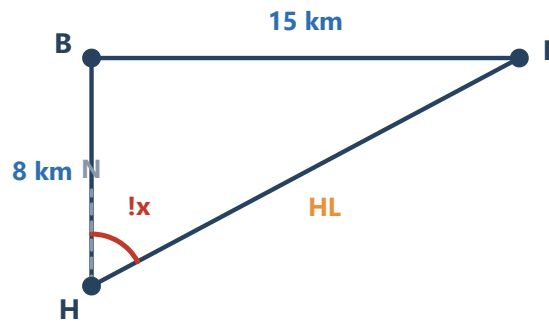
Answer: 28.0 m

- (b) (b)

Answer: 15.6°

- 9 A boat leaves a harbour H and travels 8 km due north to a buoy B, then 15 km due east to a lighthouse L. Work out (a) the distance HL, (b) the bearing of L from H, to the nearest degree.

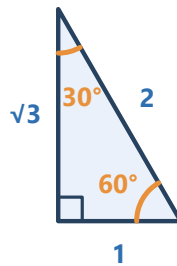
[4 marks]



Answer: 17 km, 062°

- 10** Work out the exact value of $\sin 60^\circ \times \tan 30^\circ$. Give your answer as a fraction.

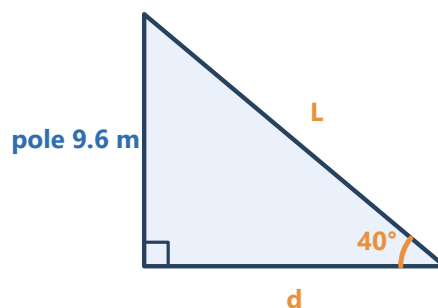
[2 marks]



Answer: $\frac{1}{2}$

- 11** A vertical pole is 9.6 m tall. A wire runs from the top of the pole to a peg in the ground. The wire makes an angle of 40° with the ground. Work out (a) the length of the wire, (b) the distance from the foot of the pole to the peg. Give your answers correct to 1 decimal place.

[4 marks]



(a) (a)

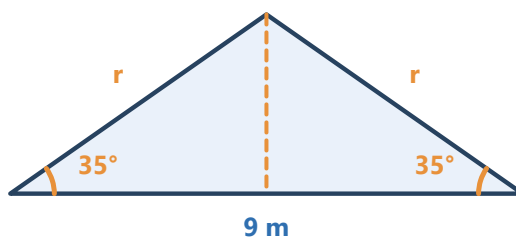
Answer: 14.9 m

(b) (b)

Answer: 11.4 m

- 12** The diagram shows the end of a roof. It is an isosceles triangle with a horizontal base of 9 m. Each base angle is 35° . Work out (a) the height of the roof, (b) the length of one sloping rafter. Give your answers correct to 2 decimal places.

[5 marks]



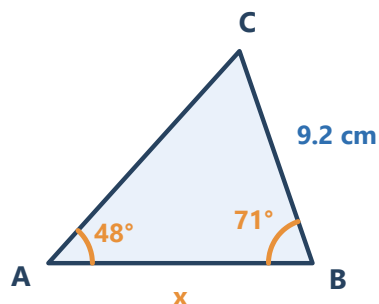
(a) (a)

Answer: 3.15 m

(b) (b)

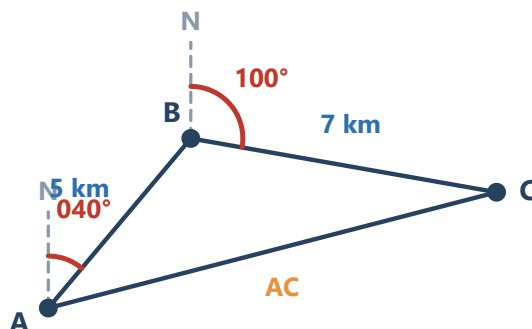
Answer: 5.49 m

- 13** In the triangle, angle A = 48° and angle B = 71° and BC = 9.2 cm. Work out the length of AB. Give your answer correct to 1 decimal place. [4 marks]



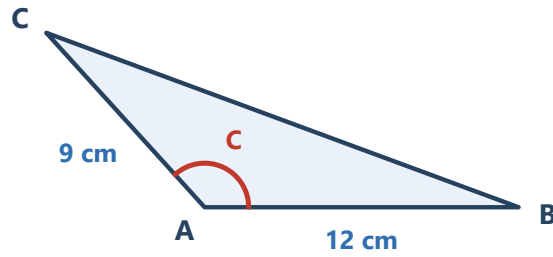
Answer: 10.8 cm

- 14** A hiker walks 5 km from A to B on a bearing of 040° , then 7 km from B to C on a bearing of 100° . Work out the distance AC, correct to 1 decimal place. [4 marks]



Answer: 10.4 km

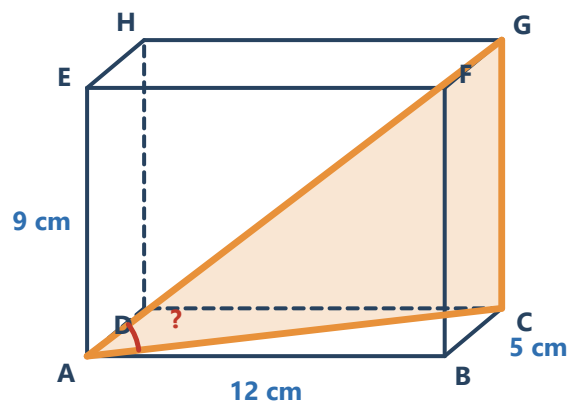
- 15** A triangle has two sides of 9 cm and 12 cm and an area of 40 cm^2 . The angle between the two sides is obtuse. Work out the size of this angle, correct to 1 decimal place. [4 marks]



Answer: 132.2°

- 16** ABCDEFGH is a cuboid with $AB = 12$ cm, $BC = 5$ cm and $CG = 9$ cm. Work out (a) the length of the diagonal AG, correct to 1 decimal place, (b) the angle between AG and the base ABCD, correct to 1 decimal place.

[5 marks]



(a) (a)

Answer: 15.8 cm

(b) (b)

Answer: 34.7°