

The Cosine Rule

For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **28**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You may use a calculator. Diagrams are not drawn accurately.

- 1 In triangle ABC , side a is opposite angle A .
Which of these is equal to a^2 ?
Circle your answer.

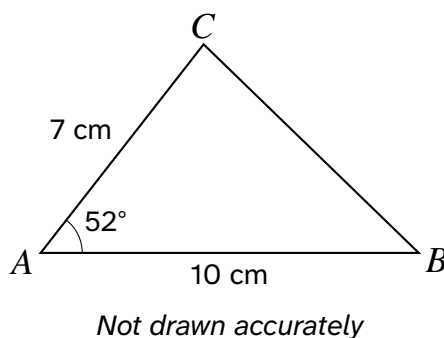
[1 mark]

$$b^2 + c^2 - 2bc \cos A$$

$$b^2 + c^2 + 2bc \cos A$$

$$b^2 - c^2 - 2bc \cos A$$

- 2 Here is triangle ABC .

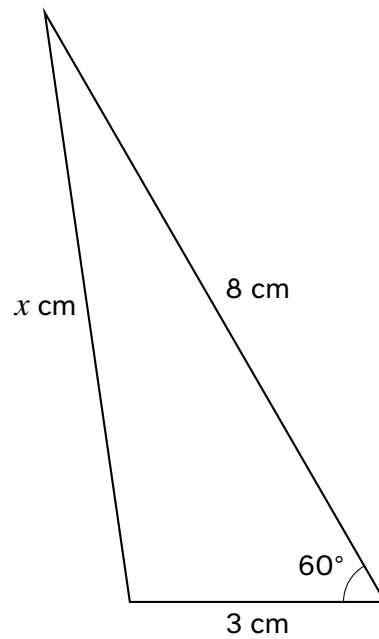


Work out the length BC .
Give your answer to 3 significant figures.

[3 marks]

Answer _____ cm

3 Here is a triangle.



Not drawn accurately

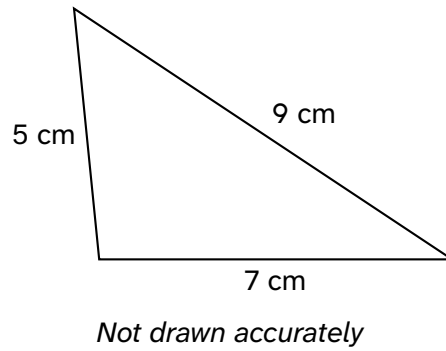
$$\cos 60^\circ = 0.5$$

Use the cosine rule to show that $x = 7$

You must show your working.

[3 marks]

- 4 A triangle has sides 5 cm, 7 cm and 9 cm.

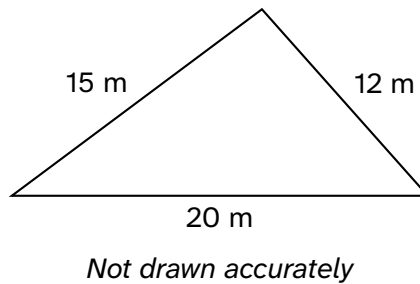


Work out the size of the largest angle.
Give your answer to 1 decimal place.

[3 marks]

Answer _____ degrees

- 5 A garden is in the shape of a triangle with sides 12 m, 15 m and 20 m.

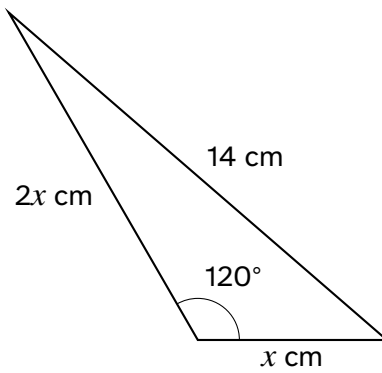


Work out the size of the smallest angle of the garden.
Give your answer to 1 decimal place.

[3 marks]

Answer _____ degrees

6 Here is a triangle.



Not drawn accurately

$$\cos 120^\circ = -0.5$$

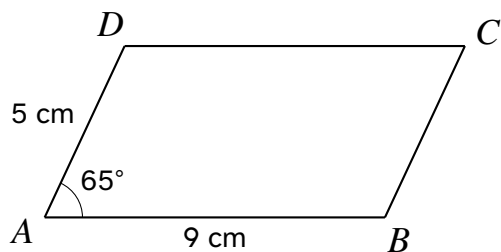
Work out the value of x .

Give your answer in the form $a\sqrt{b}$ where a and b are integers.

[3 marks]

$x =$ _____

- 7 Here is a parallelogram.



Not drawn accurately

$ABCD$ is a parallelogram.

Work out the length of the longer diagonal of the parallelogram.

[4 marks]

Answer _____ cm

- 8 Two boats leave a harbour at the same time.
Boat P sails 40 km on a bearing of 070°
Boat Q sails 55 km on a bearing of 195°
Work out the distance between the boats.

[4 marks]

Answer _____ km

- 9 Maya cycles from her home, H , to a café, C .
 C is 7.2 km from H on a bearing of 300°
She then cycles 5.5 km from C to a lake, L , on a bearing of 045°
Maya then cycles in a straight line from L back to H .
Work out the total distance Maya cycles.

[4 marks]

Answer _____ km