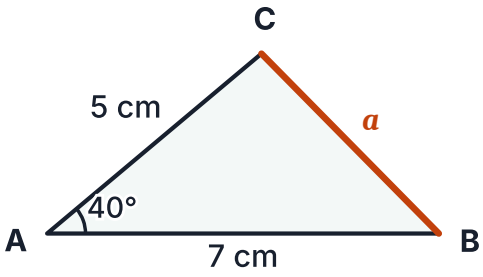
The Cosine Rule

Specification: AQA 7357: E1 · Edexcel 9MA0: 5.1

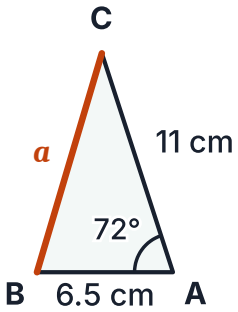
INDEPENDENT **You do**

A · Find the missing side

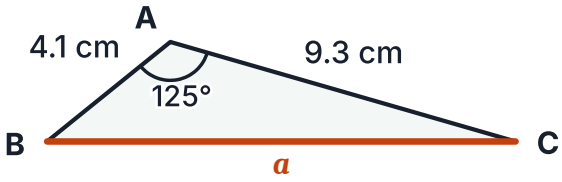
1 Find a.



2 Find a.



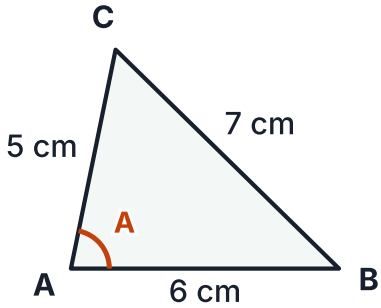
3 Find a.



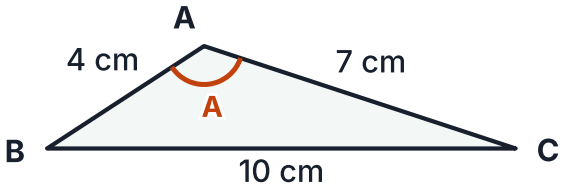
4 An isosceles triangle has two sides of 12 cm with 30° between them. Find the length of the third side.

B · Find the missing angle

5 Find angle A.



6 Find angle A.



7 A triangle has sides 9 cm, 11 cm and 15 cm. Find the largest angle.

8 A triangle has sides 3.9 cm, 6.2 cm and 8.4 cm. Find the smallest angle.

C · Reasoning No calculator for this section.

9 A triangle has sides 3 cm, 5 cm and 7 cm. Show that its largest angle is exactly 120°.

10 Use the cosine rule to explain why no triangle has sides 4 cm, 6 cm and 11 cm.

11 Is a triangle with sides 5 cm, 6 cm and 8 cm acute, right-angled or obtuse? Explain without finding the angle.

D · Algebra

12 $AB = x$ cm, $AC = (x + 4)$ cm, angle $BAC = 120°$ and $BC = 14$ cm. Find x.

13 A triangle has sides x cm, $(x + 1)$ cm and $(x + 2)$ cm. The largest angle is θ.

(a) Show that $\cos\theta = \dfrac{x - 3}{2x}$.

(b) Given that θ = 120°, find x.

E · Exam-style question Use the mark scheme to self-assess.

14 A ship sails 12 km from port P on a bearing of 040° to a point Q. It then sails 9 km on a bearing of 115° to a point R.

(a) Find the distance PR. [3 marks]

(b) Find the bearing of R from P. [3 marks]