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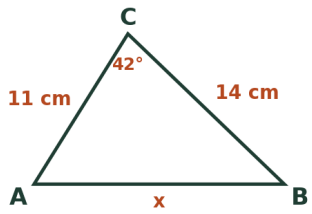
# The Cosine Rule

Grade 7 topic · Higher tier · Edexcel and AQA

**How to use this pack**
20 questions that get harder as you go. Questions 1–15 (68 marks) build up to the harder Grade 8–9 style questions at the end; aim to complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 94 marks.

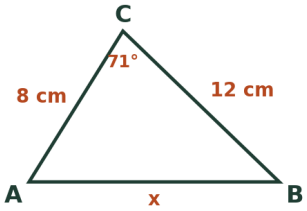
## Warm-up

**1** Work out the length of the side marked x. Give your answer to 3 significant figures. **[4 marks]**



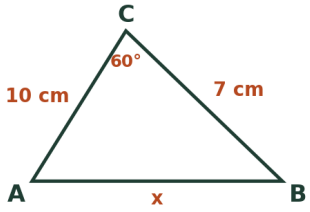

**Answer** _____

**2** Work out the length of the side marked x. Give your answer to 3 significant figures. **[4 marks]**



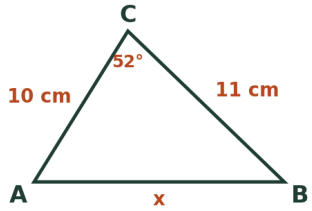

**Answer** _____

**3** Work out the length of the side marked x. Give your answer to 3 significant figures. **[4 marks]**



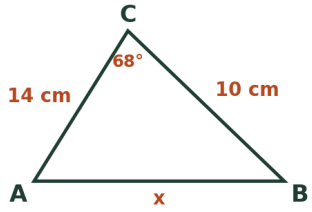

**Answer** _____

**4** Work out the length of the side marked x. Give your answer to 3 significant figures. **[4 marks]**




**Answer** _____

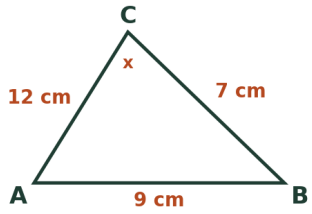
**5** Work out the length of the side marked x. Give your answer to 3 significant figures. **[4 marks]**




**Answer** _____

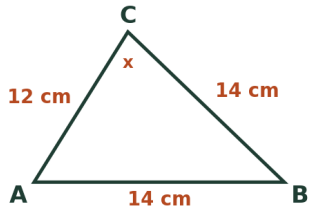
## Core

**6** Work out the size of angle x. Give your answer to 1 decimal place. **[5 marks]**



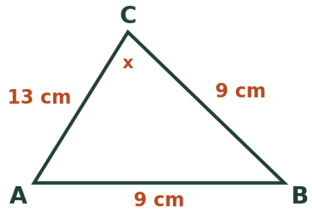

**Answer** _____

**7** Work out the size of angle x. Give your answer to 1 decimal place. **[5 marks]**



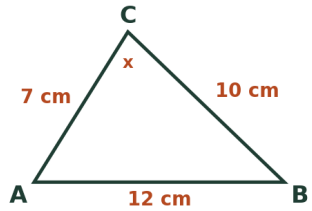

**Answer** _____

**8** Work out the size of angle x. Give your answer to 1 decimal place. **[5 marks]**



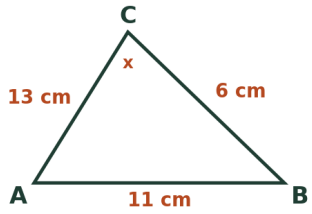

**Answer** _____

**9** Work out the size of angle x. Give your answer to 1 decimal place. **[5 marks]**




**Answer** _____

**10** Work out the size of angle x. Give your answer to 1 decimal place. **[5 marks]**




**Answer** _____

## Stretch

**11** In triangle ABC, AB = 14 cm, BC = 9 cm and angle B = 106°. Work out AC to 3 s.f. **[5 marks]**

**Answer** _____

**12** A triangle has sides 9 cm, 15 cm and 14 cm. Work out the largest angle to 1 d.p. **[5 marks]**

**Answer** _____

**13** Two ships leave a port. One sails 10 km on a bearing of 040° and the other sails 22 km on a bearing of 110°. Work out how far apart they are, to 3 s.f. **[6 marks]**

**Answer** _____

**14** A triangle has sides 6 cm and 6 cm with angle 63° between them. Work out the third side to 3 s.f. **[4 marks]**

**Answer** _____

**15** State the cosine rule for finding side a. **[3 marks]**

**Answer** _____

## Challenge

**16** A parallelogram has sides 11 cm and 6 cm and one diagonal of 9 cm. Work out the angle between the sides 11 and 6, to 1 d.p. **[6 marks]**

**Answer** _____

**17** Triangle ABC has sides 10, 15 and 10 cm. Work out its perimeter, then the cosine of the angle opposite 10. **[5 marks]**

**Answer** _____

**18** The sides of a triangle are 5 cm, 7 cm and 10 cm. Show that the triangle is obtuse. **[5 marks]**

**Answer** _____

**19** A triangle has sides 5 cm and 12 cm and angle 55° between them. Work out its area and its third side, both to 3 s.f. **[6 marks]**

**Answer** _____

**20** Explain how you decide between the sine rule and the cosine rule. **[4 marks]**

**Answer** _____