

The Cosine Rule

For Pearson Edexcel GCSE Mathematics (1MA1) • Higher tier

Name _____

Total marks: **25**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You may use a calculator.

1 Here is a triangle.

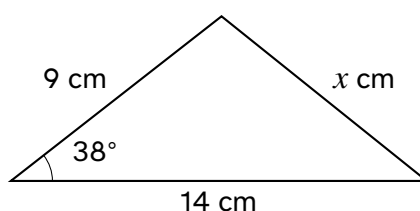


Diagram **NOT** accurately drawn

Work out the value of x .

Give your answer correct to 3 significant figures.

$x =$
(3)

(Total for Question 1 is 3 marks)

- 2 PQR is a triangle.

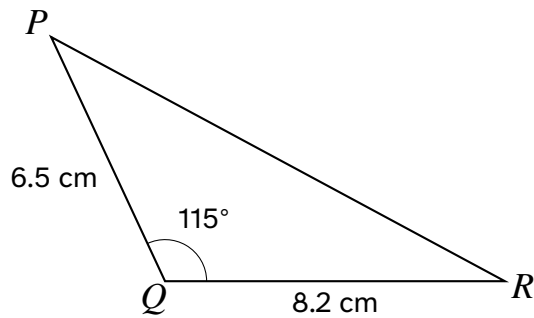


Diagram **NOT** accurately drawn

Calculate the length of PR .
Give your answer correct to 3 significant figures.

..... cm
(3)

(Total for Question 2 is 3 marks)

- 3 ABC is a triangle with $AB = 8$ cm, $BC = 6$ cm and $AC = 11$ cm.

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

.....
(3)

(Total for Question 3 is 3 marks)

- 4 A triangle has sides 4 cm, 6 cm and $2\sqrt{10}$ cm. The angle between the sides of length 4 cm and 6 cm is θ .

Show that $\cos \theta = \frac{1}{4}$

(3)

(Total for Question 4 is 3 marks)

- 5 A , B and C are three buoys used in a sailing race.
 B is 3.2 km due east of A .
 C is 4.1 km from A and 2.5 km from B .
 C is north of the line AB .
Work out the bearing of C from A .
Give your answer correct to the nearest degree.

..... °
(4)

(Total for Question 5 is 4 marks)

6 Here is triangle ABC .

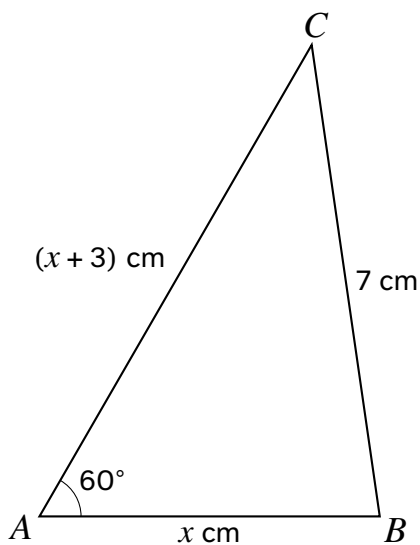


Diagram **NOT** accurately drawn

$AB = x \text{ cm}$, $AC = (x + 3) \text{ cm}$, $BC = 7 \text{ cm}$ and angle $BAC = 60^\circ$

$\cos 60^\circ = 0.5$

Work out the value of x .

You must show all your working.

$x = \dots\dots\dots$
(4)

(Total for Question 6 is 4 marks)

7 $ABCD$ is a quadrilateral.

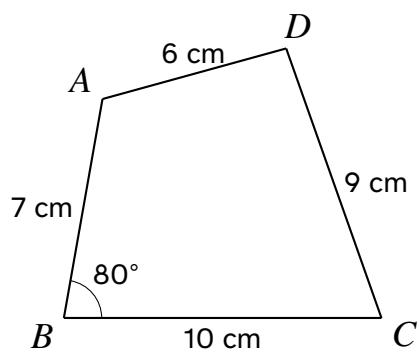


Diagram **NOT** accurately drawn

Calculate the size of angle ADC .
Give your answer correct to 1 decimal place.
You must show all your working.

..... $^\circ$
(5)

(Total for Question 7 is 5 marks)