

1 In triangle ABC , side AB has length 15cm, side AC has length 12cm and $\angle BAC = 60^\circ$

(a) Find the length of side BC .

(3)

(b) Find the area of triangle ABC .

(2)

(Total for question 1 is 5 marks)

2 In triangle ABC , side AB has length 8cm, side BC has length 7cm and side AC has length 6cm.

(a) Find the size of angle ABC .

(3)

(b) Find the area of triangle ABC .

(2)

(Total for question 2 is 5 marks)

3 In triangle DEF , $ED = 5\text{cm}$ and $EF = 6\text{cm}$. Given that $\sin(\angle DEF) = \frac{2}{3}$ and $\angle DEF$ is acute.

(a) Find the exact value of $\cos(\angle DEF)$

(2)

(b) Find the length of DF .

(4)

(c) Find $\angle EFD$.

(3)

(Total for question 3 is 9 marks)

4 In triangle PQR , side PQ has length 9cm and side PR has length 10cm. Given the area of PQR is 30cm^2

(a) Find the length of side QR .

(5)

(b) Find $\angle PQR$

(3)

(Total for question 4 is 8 marks)

- 5** In the triangle ABC , $AB = 13\text{cm}$, $BC = 10\text{cm}$ and angle $BAC = 30^\circ$
Find the two possible sizes of angle ABC , giving your answers to two decimal places.

(Total for question 5 is 6 marks)

- 6** In the triangle ABC , $AB = (x + 3)\text{cm}$, $BC = (x + 2)\text{cm}$, $AC = x\text{cm}$ and angle $BAC = 60^\circ$
Find the value of x .

(Total for question 6 is 5 marks)

7 In triangle ABC , side AB has length 6 cm, side AC has length 10 cm and $\angle BAC = \theta$, where θ is measured in degrees. The area of triangle ABC is 18 cm^2

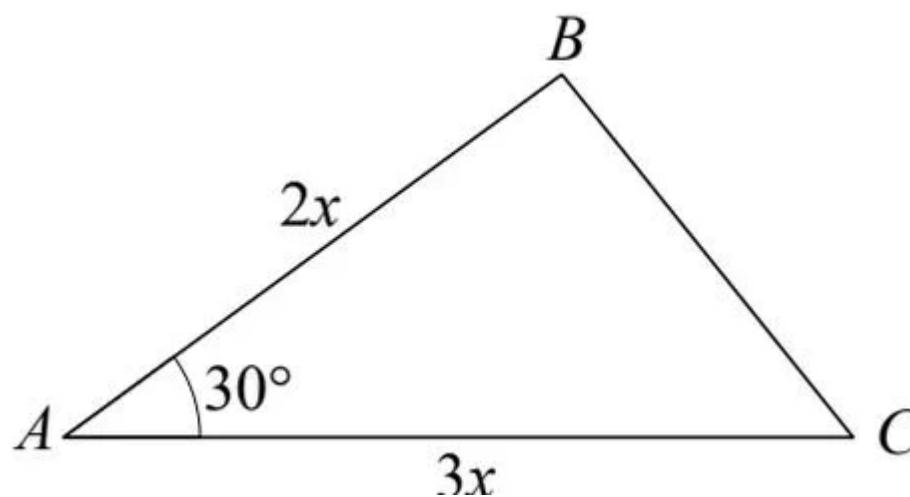
(a) Find the two possible values of $\sin \theta$.

(4)

(b) Given that BC is the longest side of the triangle, find the exact length of BC .

(4)

(Total for question 7 is 8 marks)



Given the area of triangle ABC is 12 cm^2

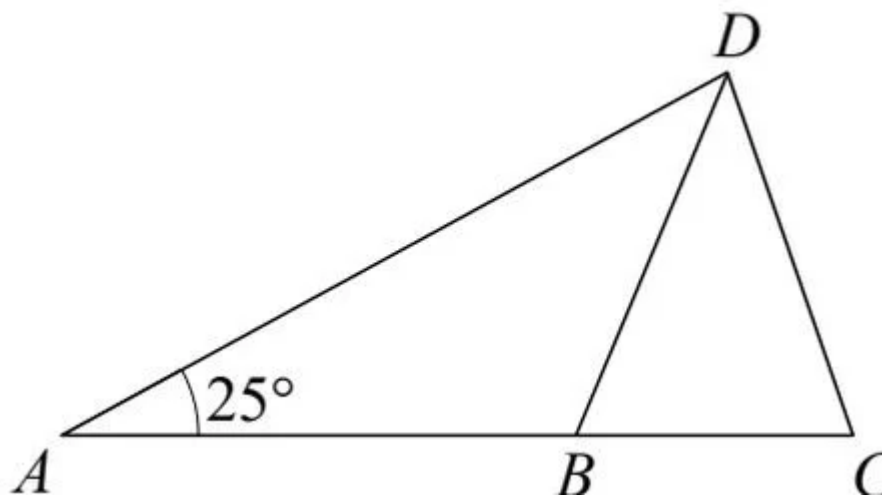
- (a) Find the exact value of x .

(3)

- (b) Find the length of BC .

(3)

(Total for question 8 is 6 marks)



Given $AD = 12$ cm, $BD = CD = 8$ cm and angle $DAC = 25^\circ$

- (a) Find the size of angle ABD to one decimal place.

(3)

- (b) Find the length of AC

(3)

(Total for question 9 is 6 marks)

- 10** A parallelogram $ABCD$ has area 55 cm^2 . Given AB has length 5 cm, BC has length 12 cm and angle ABC is obtuse.

(a) Find the size of angle ABC to 2 decimal places.

(3)

(b) Find the length of the diagonal AC to 1 decimal place.

(2)

(Total for question 10 is 5 marks)

11 In triangle ABC , $AB = 12$ cm and angle $B = 40^\circ$

(a) Given $AC = 10$ cm, find the two possible values for angle C , correct to 1 decimal place.

(4)

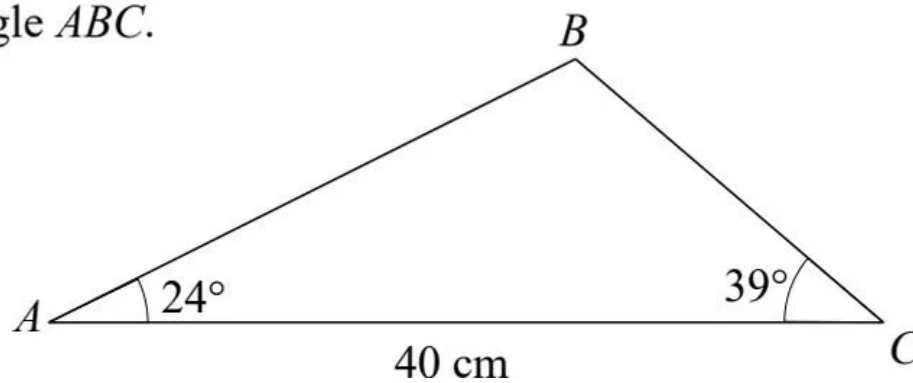
(b) Given instead that the area of the triangle is $75\sqrt{2}$ cm², find BC .

(2)

(Total for question 11 is 6 marks)

- 12 Find the area of triangle ABC .

Triangle ABC .



Calculate the area.

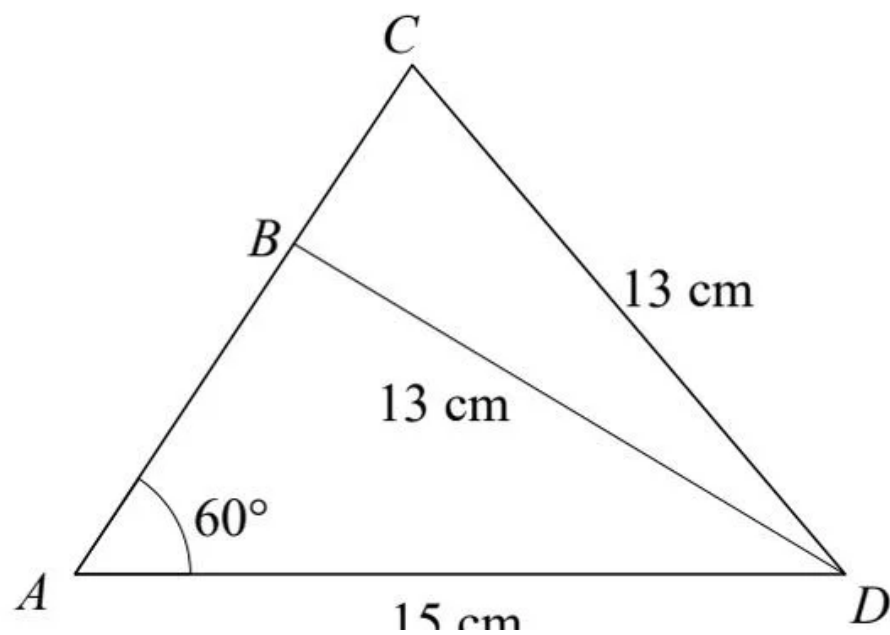
(Total for question 12 is 3 marks)

- 13 Sketch the graph of $y = \sin(x) + 1$ for $0 \leq x \leq 360$
Sketch the graph.

(Total for question 13 is 3 marks)

- 14** Sketch the graph of $y = \cos(x + 90)$ for $0 \leq x \leq 360$
Sketch the graph.

(Total for question 14 is 3 marks)



ACD is a triangle and B lies on AC . Angle $CAD = 60^\circ$, $AD = 15$ cm, $BD = CD = 13$ cm

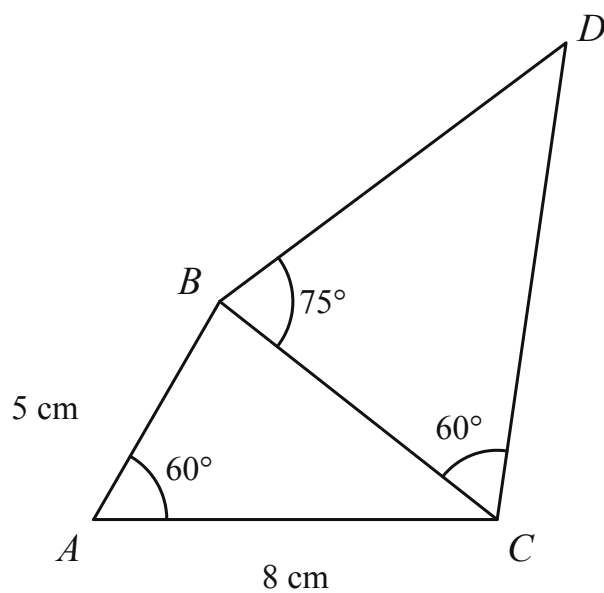
(a) Find the length of AC

(3)

(b) Hence, or otherwise, find the length of AB

(1)

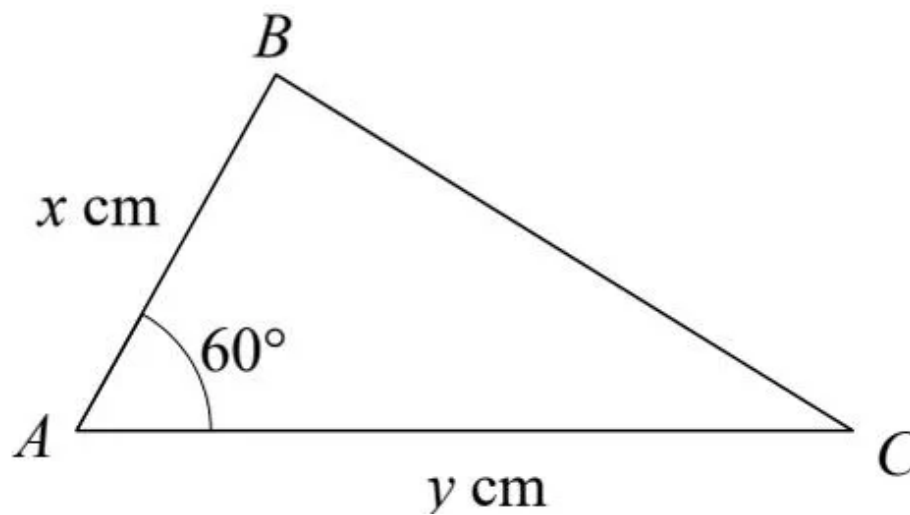
(Total for question 15 is 4 marks)



Calculate the exact value of the length BD .

Calculate BD .

(Total for question 16 is 4 marks)



In triangle ABC , $AB = x$, $AC = y$ and angle $A = 60^\circ$. It is given the area of $ABC = 2\sqrt{3}(x + y) \text{ cm}^2$.

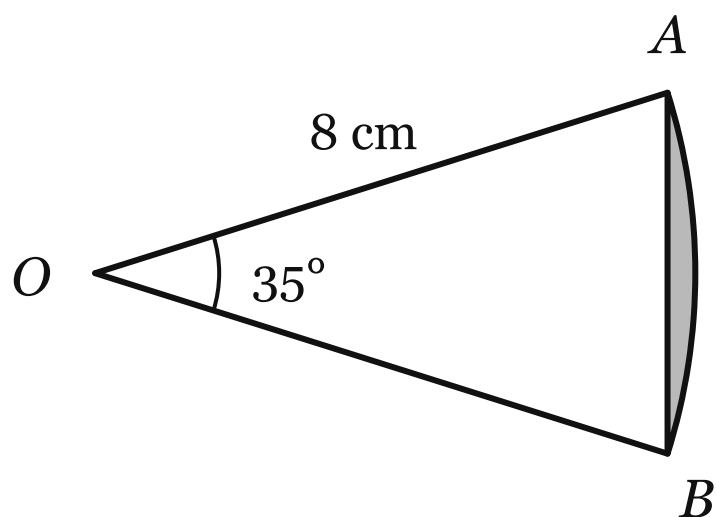
- (a) Show that $8x + 8y = xy$

(3)

- (b) When the vertices of the triangle are placed on the circumference of a circle, AC is a diameter of the circle. Determine the value of x and the value of y .

(4)

(Total for question 17 is 7 marks)



The diagram shows sector AOB of a circle with centre O and radius 8 cm . Angle $AOB = 35^\circ$

(a) Calculate the length of the straight line AB .

(2)

(b) Find the area of the shaded segment.

(3)

(Total for question 18 is 5 marks)

19 In triangle ABC , side AB has length 5 cm, side BC has length 9 cm and side AC has length 7 cm .

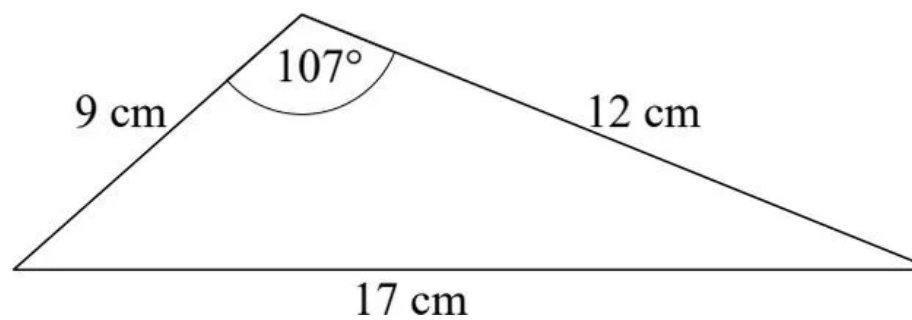
(a) Find the cosine of angle ACB , giving your answer as a fraction in its simplest form.

(2)

(b) Find the exact area of the triangle.

(3)

(Total for question 19 is 5 marks)



Calculate the area of the triangle giving your answer correct to 3 significant figures.
Calculate the area.

(Total for question 20 is 2 marks)
