



Sine and Cosine Rules and Area of a Triangle Exam Questions Sheet 2

Q1.

Figure 1

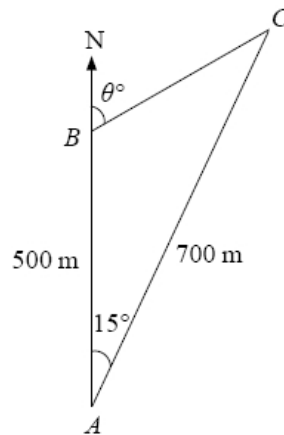


Figure 1 shows 3 yachts A , B and C which are assumed to be in the same horizontal plane. Yacht B is 500 m due north of yacht A and yacht C is 700 m from A . The bearing of C from A is 015° .

(a) Calculate the distance between yacht B and yacht C , in metres to 3 significant figures.

(3)

The bearing of yacht C from yacht B is θ° , as shown in Figure 1.

(b) Calculate the value of θ .

(4)

(Total 7 marks)

Q2.

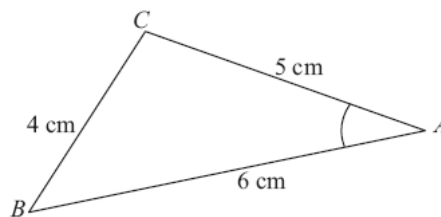


Figure 1

Figure 1 shows the triangle ABC , with $AB = 6$ cm, $BC = 4$ cm and $CA = 5$ cm.

(a) Show that $\cos A = \frac{3}{4}$.

(3)

(b) Hence, or otherwise, find the exact value of $\sin A$.

(2)

(Total 5 marks)



Q3.

In the triangle ABC , $AB = 16$ cm, $AC = 13$ cm, angle $ABC = 50^\circ$ and angle $BCA = x^\circ$

Find the two possible values for x , giving your answers to one decimal place.

(4)

(Total for question = 4 marks)

Q4.

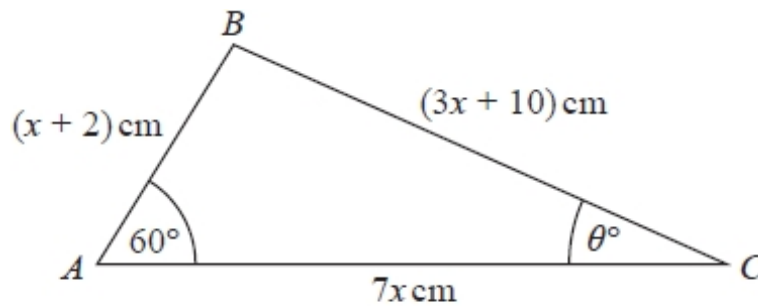


Figure 1

Figure 1 shows a sketch of triangle ABC with $AB = (x + 2)$ cm, $BC = (3x + 10)$ cm, $AC = 7x$ cm, angle $BAC = 60^\circ$ and angle $ACB = \theta^\circ$

(a) (i) Show that $17x^2 - 35x - 48 = 0$

(3)

(ii) Hence find the value of x .

(1)

(b) Hence find the value of θ giving your answer to one decimal place.

(2)

(Total for question = 6 marks)



Q5. [Note: This topic involves equations of circles. Leave this out if you have not yet covered this]

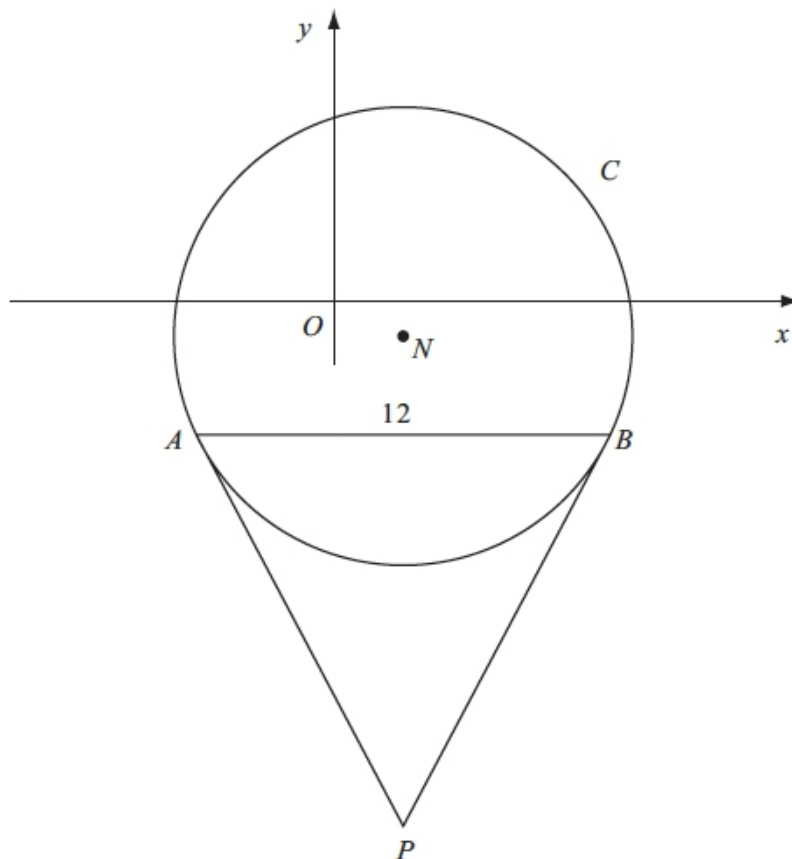


Figure 3

Figure 3 shows a sketch of the circle C with centre N and equation

$$(x - 2)^2 + (y + 1)^2 = \frac{169}{4}$$

(a) Write down the coordinates of N .

(2)

(b) Find the radius of C .

(1)

The chord AB of C is parallel to the x -axis, lies below the x -axis and is of length 12 units as shown in Figure 3.

(c) Find the coordinates of A and the coordinates of B .

(5)

(d) Show that angle $ANB = 134.8^\circ$, to the nearest 0.1 of a degree.

(2)

The tangents to C at the points A and B meet at the point P .

(e) Find the length AP , giving your answer to 3 significant figures.

(2)

(Total 12 marks)