Trigonometric Ratios- Questions

May 2019 Mathematics Advanced Paper 1: Pure Mathematics 1

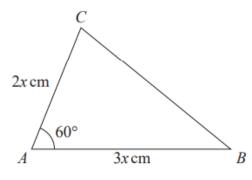1.

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Figure 1

Figure 1 shows a sketch of a triangle ABC with $AB = 3x$ cm, $AC = 2x$ cm and angle $CAB = 60°$

Given that the area of triangle ABC is $18\sqrt{3}$ cm²

(a) show that $x = 2\sqrt{3}$

(3)

(b) Hence find the exact length of BC, giving your answer as a simplified surd.

(3)

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2.

In a triangle ABC, side AB has length 10 cm, side AC has length 5 cm, and angle $BAC = \theta$ where θ is measured in degrees. The area of triangle ABC is 15 cm²

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

(4)

Given that BC is the longest side of the triangle,

(b) find the exact length of BC.

(2)

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3.

2. In the triangle ABC, $AB = 16$ cm, $AC = 13$ cm, angle $ABC = 50°$ and angle $BCA = x°$

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

(4)

4.

2.   In the triangle ABC, $AB = 11$ cm, $BC = 7$ cm and $CA = 8$ cm.

(a) Find the size of angle C, giving your answer in radians to 3 significant figures.

(3)

(b) Find the area of triangle ABC, giving your answer in cm^2 to 3 significant figures.

(3)