

TRIGONOMETRY (Q 4 & 5, PAPER 2)

LESSON NO. 2: AREA OF A TRIANGLE

2005

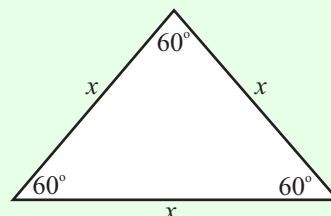
5 (a) The area of an equilateral triangle is $4\sqrt{3}$ cm². Find the length of a side of the triangle.

SOLUTION

5 (a)

In an equilateral triangle, all sides and all angles are equal.

$$A = \frac{1}{2}ab \sin C \dots\dots \mathbf{5}$$



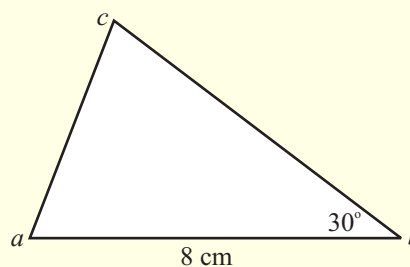
$$A = \frac{1}{2}(x)(x) \sin 60^\circ = 4\sqrt{3}$$

$$\Rightarrow \frac{1}{2}x^2 \left(\frac{\sqrt{3}}{2}\right) = 4\sqrt{3} \Rightarrow x^2 = 16 \Rightarrow x = 4 \text{ cm}$$

2002

5 (a) The area of triangle abc is 12 cm². $|ab| = 8$ cm

and $|\angle abc| = 30^\circ$. Find $|bc|$.



SOLUTION

5 (a)

$$A = \frac{1}{2}(8)(|bc|) \sin 30^\circ = 12 \Rightarrow 4(|bc|) \frac{1}{2} = 12$$

$$\Rightarrow |bc| = 6 \text{ cm}$$

$$A = \frac{1}{2}ab \sin C \dots\dots \mathbf{5}$$