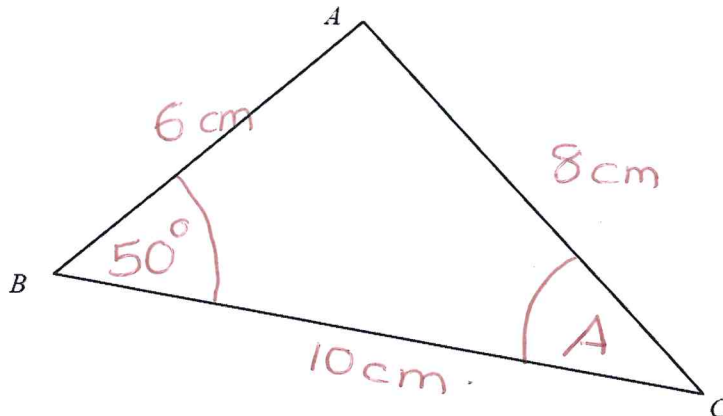


Q. 3

The diagram shows a triangle ABC in which $|AB| = 6$ cm, $|CB| = 10$ cm, and $|\angle ABC| = 50^\circ$.



(a) Calculate the area of triangle ABC , correct to the nearest cm^2 .

$$\frac{1}{2}ab\sin C$$

$$\Rightarrow \frac{1}{2}(6)(10)\sin 50^\circ$$

$$\Rightarrow 22.98$$

$$\Rightarrow 23 \text{ cm}^2$$

(b) If $|AC| = 8$ cm, find $|\angle BCA|$

$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

$$\Rightarrow \frac{6}{\sin A} = \frac{8}{\sin 50^\circ}$$

$$\Rightarrow \frac{6}{\sin A} = \frac{8}{0.766}$$

$$8 \sin A = 6(0.766)$$

$$8 \sin A = 4.596$$

$$\sin A = \frac{4.596}{8}$$

$$\sin A = 0.5745$$

$$A = \sin^{-1}(0.5745)$$

$$A = 35.06$$

$$A = 35^\circ$$

Area of a Triangle:

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

Sine Rule:

$$\frac{a}{\sin A} = \frac{b}{\sin B}$$