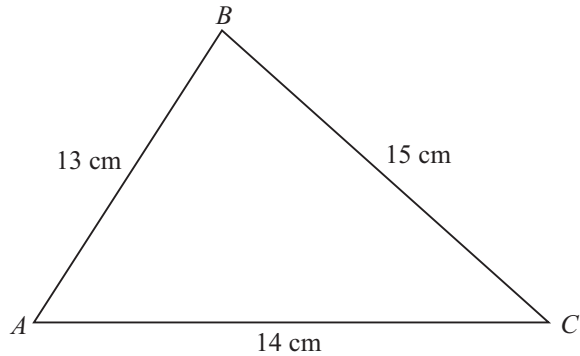


SAMPLE PAPER 6: PAPER 1

QUESTION 3 (25 MARKS)

Question 3 (a)

BIGGEST ANGLE: $\angle BAC$ [The biggest angle is opposite the longest side.]



Question 3 (b)

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$15^2 = 13^2 + 14^2 - 2(13)(14)\cos(\angle BAC)$$

$$2(13)(14)\cos(\angle BAC) = 13^2 + 14^2 - 15^2$$

$$\cos(\angle BAC) = \frac{13^2 + 14^2 - 15^2}{2(13)(14)}$$

$$\angle BAC = \cos^{-1}\left(\frac{13^2 + 14^2 - 15^2}{2(13)(14)}\right) = 67.4^\circ$$

Question 3 (c)

$$\text{Area} = \frac{1}{2}(13)(14)\sin 67.4^\circ = 84 \text{ cm}^2$$

$$\text{Area} = \frac{1}{2}ab \sin C$$

Question 3 (d)

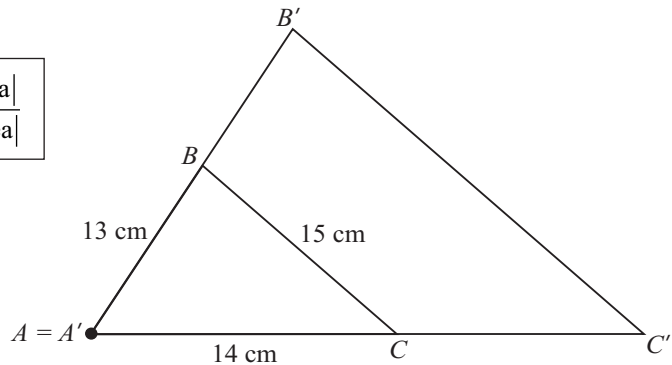
$$k = 1.5$$

$$|\text{Object area}| = 84 \text{ cm}^2$$

$$k^2 = \frac{|\text{Image area}|}{|\text{Object area}|}$$

$$|\text{Image area}| = ?$$

$$\begin{aligned} |\text{Image area}| &= k^2 |\text{Object area}| \\ &= (1.5)^2 (84) = 189 \text{ cm}^2 \end{aligned}$$



$$k = 1.5$$

$$|\text{Object length}| = |BC| = 15 \text{ cm}$$

$$\text{Scale factor } k = \frac{|\text{Image length}|}{|\text{Object length}|}$$

$$|\text{Image area}| = |B'C'| = ?$$

$$\begin{aligned} |BC| &= k |B'C'| \\ &= (1.5)(15) = 22.5 \text{ cm} \end{aligned}$$