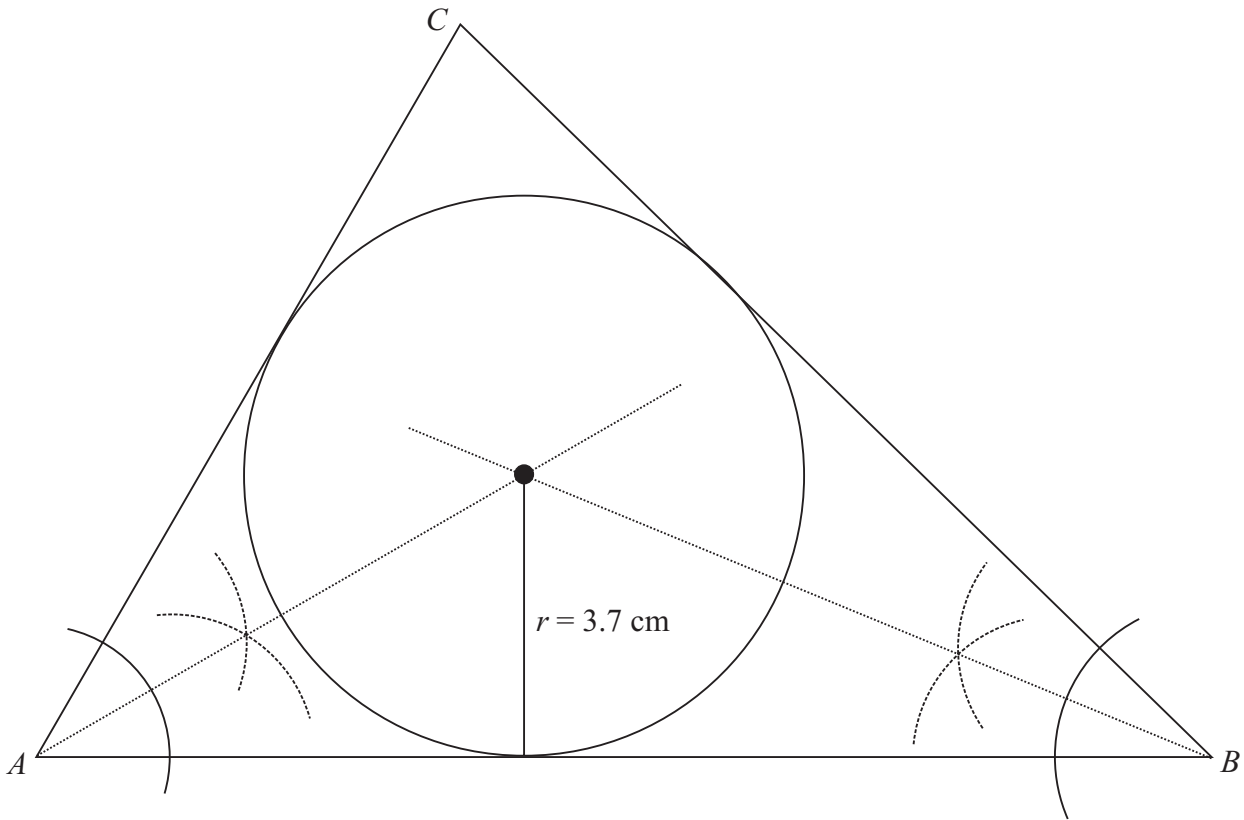


LC 2014 (SET C): PAPER 2

QUESTION 6A (25 MARKS)

Question 6A (a) (i)



- Use your compass to bisect $\angle CAB$ and $\angle ABC$.
- The intersection of the angle bisectors is the incentre.
- Draw the incircle.

Question 6A (a) (ii)

Radius $r = 3.7$ cm

MARKING SCHEME NOTES

Question 6A (a) (i) [Scale 15B (0, 7, 15)]

7: • Any work of merit e.g. One arc drawn from a vertex

15: • An incircle constructed with at least one side of the triangle a tangent to the circle

Question 6A (a) (ii) [Scale 5B (0, 3, 5)]

3: • Accept length of radius in intervals $3.3 \leq r < 3.5$ and $3.7 < r \leq 3.9$

5: • Award full credit to radius in interval $3.5 \leq r \leq 3.7$

Question 6A (b)

$\angle MPN$ is a right angle as it stands on the diameter.

$$|PM|^2 + |PN|^2 = |MN|^2$$

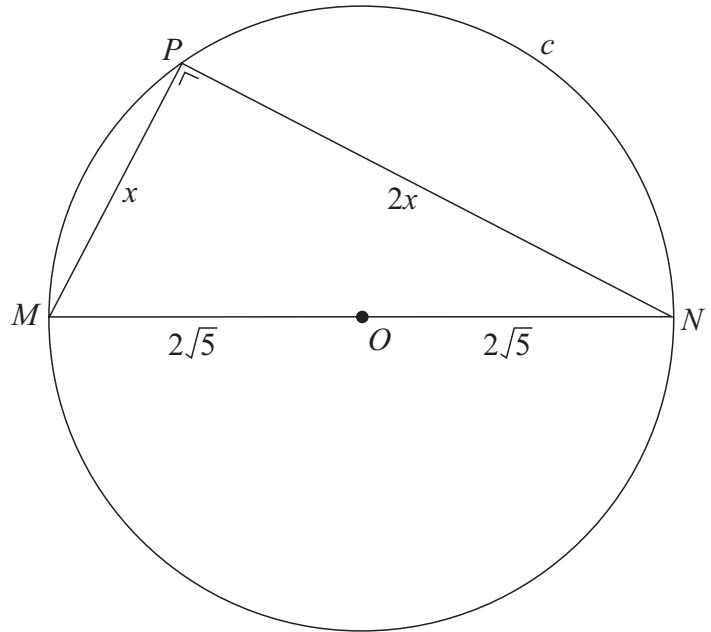
$$x^2 + (2x)^2 = (4\sqrt{5})^2$$

$$x^2 + 4x^2 = 80$$

$$5x^2 = 80$$

$$x^2 = 16$$

$$x = \sqrt{16} = 4 \text{ cm}$$

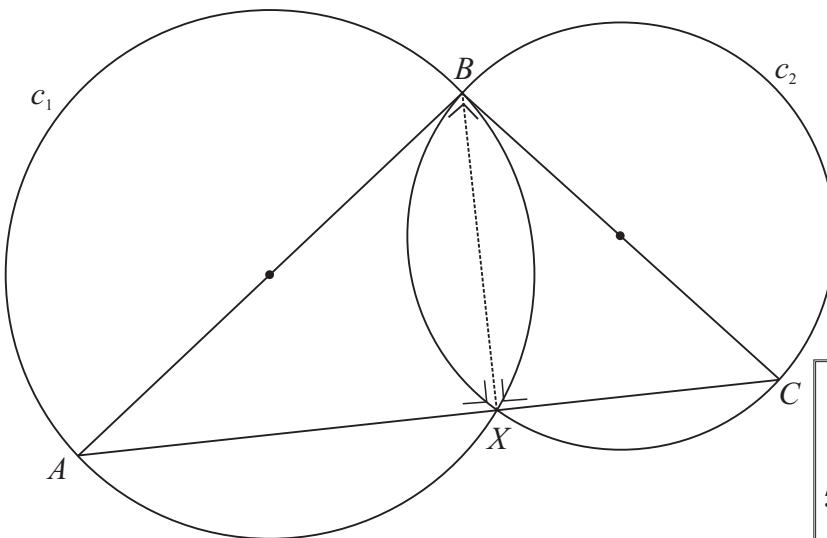


MARKING SCHEME NOTES

Question 6A (b) [Scale 5B (0, 3, 5)]

- 3: • Diameter calculated as $4\sqrt{5}$ or similar
 • Any relevant work in the use of Pythagoras or recognition of angle standing on diameter at circumference measures 90°

QUESTION 6B (25 MARKS)



$X \in c_1 \Rightarrow |\angle BXA| = 90^\circ$ [Angle standing on a diameter is a right angle]

$X \in c_2 \Rightarrow |\angle BXC| = 90^\circ$ [Angle standing on a diameter is a right angle]

$$\therefore |\angle AXC| = 180^\circ$$

$|\angle AXC|$ is a straight angle. Therefore, X is on the line AC .

MARKING SCHEME NOTES

Question 6B

[Scale 25E (0, 5, 10, 15, 20, 25)]

- 5: • Any work of merit such as joining B to X
 10: • Identifies diameter of c_1 or c_2 , and one angle standing on semi-circle at circumference measuring 90°
 15: • Identifies diameter of c_1 or c_2 , and both angles standing on semi-circle at circumference measuring 90°
 20: • Identifies $|\angle AXC| = 180^\circ$