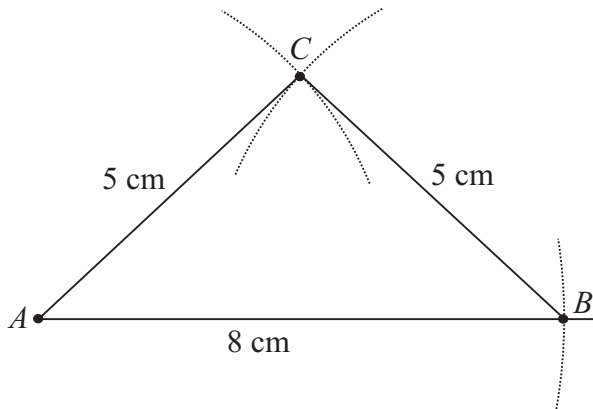


## LC 2013 (SET D): PAPER 2

### QUESTION 6A (25 MARKS)

#### Question 6A (a)



Using a compass, measure out a length of 8 cm.

With the point of the compass on  $A$ , draw an arc  $|AB|$  of length 8 cm.

Draw radii of 5 cm with the point of the compass placed at  $A$  and then  $B$ . Where the arcs intersect is point  $C$ .

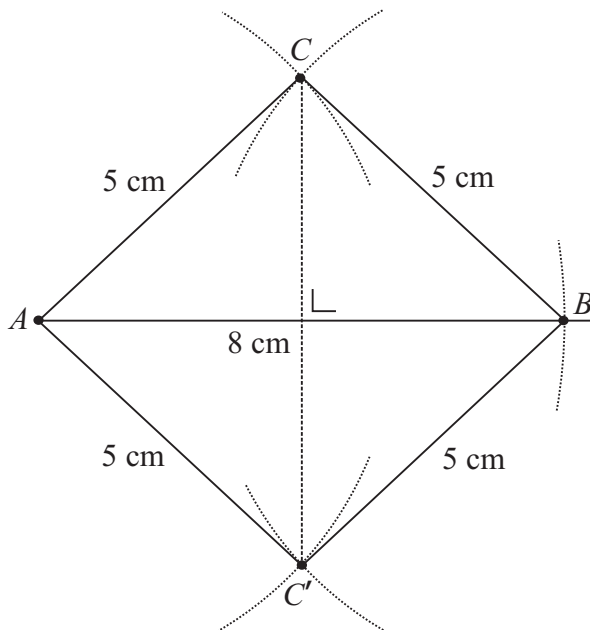
Join  $A$  to  $C$  and  $B$  to  $C$  to form triangle  $ABC$ .

#### MARKING SCHEME NOTES

##### Question 6A (a) [Scale 10C (0, 4, 7, 10)]

- 4: • Point  $B$  or  $C$  correctly marked on the given line  
 • One arc drawn for a point not on the line  
 • Freehand triangle drawn with dimensions.
- 7: • Point  $B$  found and one arc for  $C$  drawn  
 • Correct triangle drawn but construction lines not shown  
 • Points  $B$  and  $C$  constructed but sides not drawn  
 • Triangle constructed correctly but measurements not exact

#### Question 6A (b)



#### AXIAL SYMMETRY

The triangle  $ABC$  folds over the line to produce triangle  $ABC'$ .

Draw radii of 5 cm with the point of the compass placed at  $A$  and then  $B$ .

Where the arcs intersect is point  $C'$ .

Join  $A$  to  $C'$  and  $B$  to  $C'$  to form triangle  $ABC'$ .

**MARKING SCHEME NOTES**

**Question 6A (b) [Scale 10C (0, 4, 7, 10)]**

- 4:** • Freehand image drawn  
 • Relevant work at constructing the image of C
- 7:** • Correct triangle drawn but construction lines not shown

**Question 6A (c)**

The diagonals  $[AB]$  and  $[CC']$  of  $AC'BC$  bisect one another.  
 Hence,  $AC'BC$  is a parallelogram.

**MARKING SCHEME NOTES**

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

- 3:** • Some correct element in the candidate's justification or an incomplete justification

**QUESTION 6B (25 MARKS)**

TO PROVE:  $\angle 1 + \angle 2 + \angle 3 = 90^\circ$

PROOF:

$$\triangle BQC : \angle 4 + \angle 2 + \angle 5 + 90^\circ = 180^\circ$$

$$\therefore \angle 4 + \angle 2 + \angle 5 = 90^\circ$$

$$\triangle PAC : \angle 3 + \angle 2 + \angle 5 + 90^\circ = 180^\circ$$

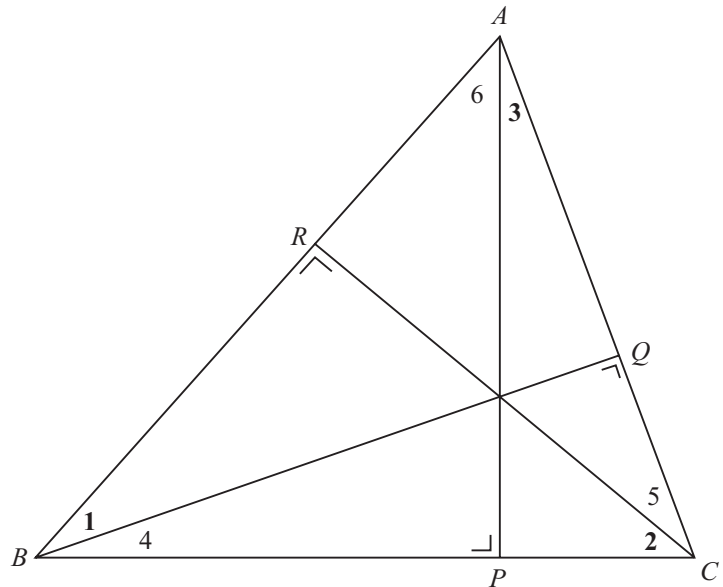
$$\therefore \angle 3 + \angle 2 + \angle 5 = 90^\circ$$

$$\angle 4 + \angle 2 + \angle 5 = \angle 3 + \angle 2 + \angle 5 \Rightarrow \angle 4 = \angle 3$$

$$\triangle BCR : \angle 1 + \angle 4 + \angle 2 + 90^\circ = 180^\circ$$

$$\therefore \angle 1 + \angle 4 + \angle 2 = 90^\circ \text{ [But } \angle 4 = \angle 3]$$

$$\therefore \angle 1 + \angle 3 + \angle 2 = 90^\circ$$



**MARKING SCHEME NOTES**

**Question 6B [Scale 25D (0, 6, 12, 19, 25)]**

- 6:** • Relevant work with the angle sum in one triangle  
 • Correct identification of vertically opposite angles being equal
- 12:** • Similar work with two relevant triangles
- 19:** • A correct answer other than one step omitted or incorrect