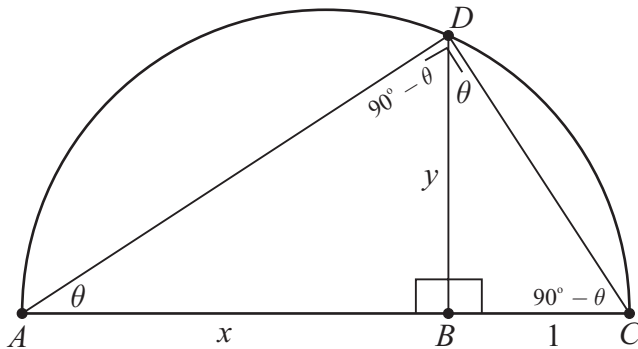


LC 2016 (SET A): PAPER 2

QUESTION 4 (25 MARKS)

Question 4 (a) (i)



Consider triangle ABD .

Let $\theta = |\angle BAD|$. $|\angle ABD| = 90^\circ$.

$\therefore |\angle ADB| = 90^\circ - \theta$.

$|\angle ADC| = 90^\circ$ [Angle standing on a diameter is a right angle]

Consider triangle DBC .

$|\angle BDC| = 90^\circ - (90^\circ - \theta) = \theta$. $|\angle DBC| = 90^\circ$.

$\therefore |\angle DCB| = 90^\circ - \theta$.

\therefore Triangles ABD and DBC are similar.

Question 4 (a) (ii)

$$\frac{|AB|}{|DB|} = \frac{|DB|}{|BC|} \Rightarrow \frac{x}{y} = \frac{y}{1}$$

$$x = y^2$$

$$\therefore y = \sqrt{x}$$

MARKING SCHEME NOTES

Question 4 (a) (i) [Scale 15C (0, 5, 10, 15)]

5: • identifies one angle of same size in each triangle

10: • identifies second angle of same size in each triangle

• implies triangles are similar without justifying (ii) in model solution or equivalent

Question 4 (a) (ii) [Scale 5C (0, 2, 4, 5)]

2: • one set of corresponding sides identified

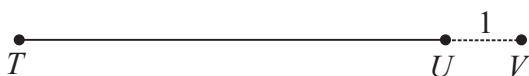
• indicates relevant use of Pythagoras

4: • corresponding sides fully substituted

• expression in y^2 or y^4 , i.e. fails to finish

Question 4 (b)

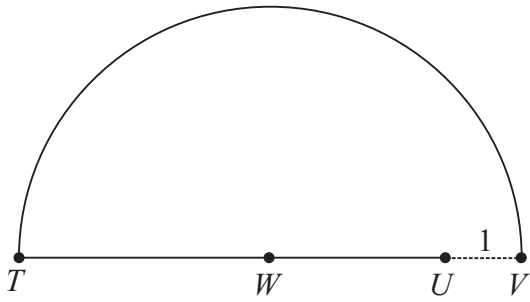
STEP 1: Draw a line $[UV]$ of length 1 cm such that $[TV]$ is a straight line.



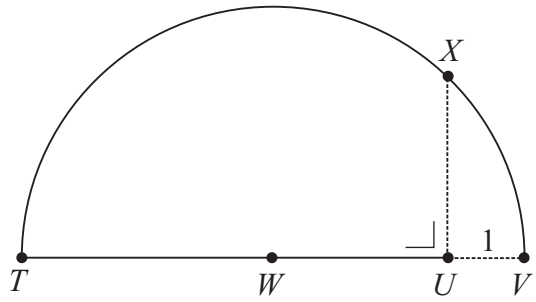
STEP 2: Find the centre W of line segment $[TV]$ using a ruler or using a compass to bisect line segment $[TV]$.



STEP 3: With W as centre and $[TW]$ as radius, draw a semi-circle.



STEP 4: Using a set-square, draw the line UX perpendicular to $[TV]$.



CONCLUSION: The length in centimetres of the line segment $[UX]$ is the square root of the length of line segment $[TV]$.

MARKING SCHEME NOTES

Question 4 (b) [Scale 5C (0, 2, 4, 5)]

- 2:**
- perpendicular line drawn at U or T
 - relevant use of 1 cm length
 - mid point of incorrect extended segment constructed
- 4:**
- correct mid-point constructed