Question Number	Scheme	Marks
1.	(a) $126 = \frac{1}{2}12^2\theta$ $\theta = \frac{126}{72} = 1\frac{3}{4}$ $l = 12 \times \frac{7}{4}$ = 21 (cm) Method (d) in Notes *or* (b) $126 = \frac{1}{2} \times 12 \times l$ $l = \frac{126}{6}$ (c) $\frac{\theta}{360} \times \pi \times 12^2 = 126$ $\theta = \frac{126 \times 360}{144\pi} = 100.27^\circ$ $l = \frac{100.27}{360} \times 2\pi \times 12 = \frac{126 \times 24}{144}$	M1 A1 M1 A1 (4)

Notes

Question 1

Method (a) and (c)

M1 for an expression in either degrees or radians using A=126 to find angle θ

A1 for a fully correct expression with correct numerical values

M1 for an expression in either degrees or radians with their θ to find arc length AB

A1 AB = 21(cm) cso

Method (b)

M1 for a correct formula $\frac{1}{2}rl$

A1 for correct substitution of the value of r, (=12)

M1 for equating their formula to 126 cm^2

A1 = 21 (cm) cso

Method (d)

M1 for an area of a circle divided by 126

A1 for using r = 12

M1 for the length of the circumference of the circle divided by their value of the scale factor using a value for r of 12 only.

A1 for 21 (cm) cso

Note: Correct solution only seen – award full marks Allow 21.0 (cm)