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June 2018
4PM0 Further Pure Mathematics Paper 1

Question number		Scheme	Marks
1 (a)		$\dfrac{1}{2} \times 10^2 \theta = 25$	M1
		$\theta = \dfrac{1}{2}$	A1 [2]
(b)		arc length $= r\theta = 10 \times \dfrac{1}{2} = 5$ (cm)	M1A1 [2]
			Total 4 marks
Notes			
(a)	M1	Uses correct formula for area of a sector $A = \dfrac{1}{2} r^2 \theta$ or rearranged to give $\theta = \dfrac{2A}{r^2}$ with fully correct substitution to obtain a value for θ	
	A1	$\theta = \dfrac{1}{2}$ or 0.5 **in radians** accept any equivalent fraction e.g. $\dfrac{50}{100}$	
(b)	M1	**1st Method** Uses their value for θ in the correct formula $l = r\theta$ to achieve a value for l. Accept only $r = 10$ cm and their value for θ **2nd Method** Uses the formula $l = \dfrac{2A}{r} \Rightarrow l = \dfrac{2 \times 25}{10} = (5)$ Accept only correct values for r and A.	
	A1	$l = 5$ (cm)	
ALT – Works in degrees			
(a)	M1	Uses correct formula for area of a sector $A = \pi r^2 \dfrac{\theta^{\circ}}{360^{\circ}}$ **AND** attempts to convert their angle (28.647... °) **correctly** into radians $\dfrac{'28.647...^{\circ}' \times \pi}{180}$ (0.16π)	
	A1	$\theta = \dfrac{1}{2}$ or 0.5 accept any equivalent fraction e.g. $\dfrac{50}{100}$ Accept 0.499 or better	
(b)	M1	Use the correct formula $l = 2\pi r \dfrac{\theta^{\circ}}{360^{\circ}}$ with their angle in **degrees** to find a value for l	
	A1	$l = 5$ (cm) Accept 4.99 (cm) or better.	
			Total 4 marks