

Question			Answer	Marks	AO	Guidance	
6	(a)		$\frac{1}{2} \times 6^2 \times \theta = 14.4$ $18\theta = 14.4$ $\theta = 0.8$ (radians) AG	B1 [1]	2.1	Use the correct formula for the area of a sector to obtain 0.8 www Must be 0.8 and not equivalent fractions	Condone verification Must work exactly throughout so B0 if via decimals
6	(b)		$\frac{1}{2} \times 6 \times AC \times \sin 0.8 = 3 \times 14.4$ $AC = 20.1$	M1 A1 [2]	1.1 1.1	Attempt use of correct formula for area of a triangle or any equiv complete method Obtain correct AC	Using 0.8 radians or 45.8° 3sf or better (awrt 20.1)
6	(c)		$\text{arc } BD = 6 \times 0.8 = 4.8$ $(BC)^2 = 6^2 + 20.07^2 - 2 \times 6 \times 20.07 \times \cos 0.8$ $BC = 16.4659\dots$ perimeter = $4.8 + (20.07 - 6) + 16.47$ $= 35.3$ (cm)	B1 M1 A1 M1 A1 [5]	1.1 3.1a 1.1 3.1a 1.1	Correct arc length (possibly unsimplified) soi Attempt use of correct cosine rule, or any equiv complete method Obtain correct BC (awrt 16.5) soi Attempt full method for perimeter Obtain correct perimeter (awrt 35.3)	Condone awrt 4.8, if working in degrees Their arc BD + (their $AC - 6$) + their BC NB using $BD = 4.7$ (or better) is likely to be chord BD so M0 unless evidence that arc has actually been attempted Accept without units