Question	Scheme	Marks	AOs
4(a)	Sector Area $A_1 + A_2 = \dfrac{1}{2}(8)^2\theta = ...$ **or** Triangle Area $A_2 = \dfrac{1}{2}(8)^2\sin\theta = ...$	M1	1.1b
	$A_1 = 32(\theta - \sin\theta)$	A1	1.1b
		(2)	
(b)	$\pi - \theta$ seen or used	B1	1.1b
	$\dfrac{1}{2}(8)^2(\pi - \theta) = 2 \times k(\theta - \sin\theta)$ $\Rightarrow \sin\theta = ...$	M1	1.1b
	$\sin\theta = \dfrac{3\theta}{2} - \dfrac{\pi}{2}$ *	A1*	2.1
		(3)	
		(5 marks)	

Notes:

(a)

M1: Attempts the area of the sector or the triangle using a correct formula.

A1: cao $A_1 = 32(\theta - \sin\theta)$

(b)

B1: Angle $\pi - \theta$ seen or used (may be labelled on the diagram).

M1: Attempts to set up an equation using $A_3 = 2A_1$ and rearranges to make $\sin\theta$ the subject.

Allow a slip, e.g., $\dfrac{\pi}{2} - \theta$ for the angle used for A_3

A1*: cso Correct work leading to $\sin\theta = \dfrac{3\theta}{2} - \dfrac{\pi}{2}$

Their value for *k* in (a) must have been 32.