

Question	Scheme	Marks	AOs
3 (a)	Uses $s = r\theta = 9.2 \times 1.82 = 16.744$	M1	1.1b
	Correct method of finding angle AFB or DFE $\frac{\pi - 1.82}{2}$	M1	1.1b
	Correct method for AB or DE using a correctly found angle (c^2) $= 9.2^2 + 10.7^2 - 2 \times 9.2 \times 10.7 \cos "0.66"$	dM1	2.1
	Finds arc length BCD + two $\times AB$ +21.4 oe	M1	3.1a
	$= 51.4$ metres	A1	1.1b
		(5)	
(b)	Uses $A = \frac{1}{2}r^2\theta = \frac{1}{2} \times 9.2^2 \times 1.82 = 77.0224$	M1	1.1b
	Correct method for area of triangle AFB or DEF $\frac{1}{2} \times 10.7 \times 9.2 \times \sin\left(\frac{\pi - 1.82}{2}\right)$	M1	1.1b
	Finds area of sector $BFDC$ + two triangles	dM1	3.1a
	$= 137.4 \text{ m}^2$	A1	1.1b
		(4)	

(9 marks)

Notes:

(a)

M1: Uses $s = r\theta = 9.2 \times 1.82$ This is implied by awrt 16.7

M1: Uses a correct method to find angle AFB or DFE This is implied by awrt 0.66 radians

dM1: Uses a correct method for AB or DE using a correctly found angle.

(c^2) $= 9.2^2 + 10.7^2 - 2 \times 9.2 \times 10.7 \cos "0.66"$

M1: Finds arc length BCD + two $\times AB$ +21.4 oe

A1: awrt 51.4 metres

(b)

M1: Uses $A = \frac{1}{2}r^2\theta = \frac{1}{2} \times 9.2^2 \times 1.82$ This is implied by awrt 77

M1: Uses a correct method for area of triangle AFB or DEF $\frac{1}{2} \times 10.7 \times 9.2 \times \sin\left(\frac{\pi - 1.82}{2}\right)$

dM1: Finds area of sector $BFDC$ + two triangles

A1: awrt 137.4 m^2