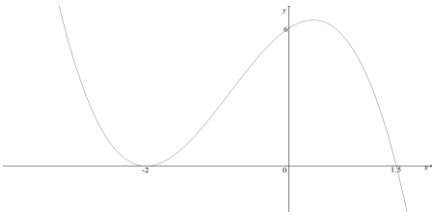
Question	Answer	Marks	Guidance
1(a)	$AOB = \arccos\left(\frac{5}{13}\right)$ oe	**M1**	For a complete method to find *AOB*
	1.18	**A1**	
1(b)	25.9 cm	**3**	**M1** for $AB = 12$ soi **M1** for arc length = $5 \times their AOB$ in radians
1(c)	Area = 15.3 cm^2	**3**	**M1** for area of triangle = 30 soi **M1** for area of sector = $\frac{1}{2} \times 25 \times their AOB$ in radians
2(a)	$\frac{dy}{dx} = \frac{1}{2}\left(2(x+2)(3-2x) - 2(x+2)^2\right)$ oe or $\frac{dy}{dx} = \frac{1}{2}\left(-6x^2 - 10x + 4\right)$ oe	**2**	**M1** for attempt to differentiate a product, or expansion and differentiation
	When $\frac{dy}{dx} = 0$, $x = -2$, $x = \frac{1}{3}$ nfww	**2**	**M1** for equating *their* $\frac{dy}{dx}$ to zero and attempt to solve a quadratic equation to obtain 2 *x*-values
2(b)		**3**	**B1** for correct shape with maximum in the first quadrant, continuing into the 4th quadrant. **B1** for correct intercepts -2 and 1.5 on the *x*-axis or stated and no others; must have a cubic graph **B1** for 6 on the *y*-axis or stated; must have a cubic graph
2(c)	$\frac{343}{54}$ or 6.35	**M1**	For finding the *y*-coordinate of the maximum point.
	$0 < k < \frac{343}{54}$ or $0 < k < 6.35$	**A1**	**A0** if additional values are given.