Question	Answer	Marks	Partial Marks
6(b)(ii)	$m_{AC} = \frac{6--4}{11-5}$ or $\frac{10}{6}$ nfww oe	**B1**	
	$m_{BD} = \frac{-1}{their\ \frac{10}{6}}$ oe	**M1**	
	$y - their\ 1 = -\frac{3}{5}(x-8)$ oe isw	**A1**	**FT** *their* 1 from (b)(i) and *their* perpendicular gradient
6(b)(iii)	$\begin{pmatrix}-5\\3\end{pmatrix}$ and $\begin{pmatrix}5\\-3\end{pmatrix}$	**B2**	**B1** for either If 0 scored, **SC1** for **−5i** + 3**j** and 5**i** −3**j**
7(a)	[Arc length + 2 × tangent length] $18\times\frac{7\pi}{9} + 2\times 18\times\tan\frac{7\pi}{18}$ oe	**M2**	**M1** for [Arc length] $18\times\frac{7\pi}{9}$ oe or [Tangent length] $18\times\tan\frac{7\pi}{18}$ oe or [Tangent length] $\frac{18}{\tan\frac{\pi}{9}}$ oe or [Tangent length] $\frac{18}{\sin\frac{\pi}{9}}\times\sin\frac{7\pi}{18}$ oe
	143 or 142.9 or awrt 142.9 (cm)	**A1**	
7(b)	[Area of kite – area of sector] $18\times their\left(18\times\tan\frac{7\pi}{18}\right) - \frac{1}{2}\times 18^2\times\frac{7\pi}{9}$ oe	**M2**	**FT** *their BC* or *CD* from (a) providing it is not 18 **M1** for [area of sector] $\frac{1}{2}\times 18^2\times\frac{7\pi}{9}$ oe or [area of kite] $18\times their\left(18\times\tan\frac{7\pi}{18}\right)$ oe or [area of kite] $18\times their(18\times\tan 70)$ oe
	494 or 494.3 or awrt 494.3 (cm^2)	**A1**	

Question	Answer	Marks	Partial Marks
8(a)	Factorises or solves $3t^2 - 30t + 72 = 0$ or $t^2 - 10t + 24 = 0$	**M1**	
	$t = 4$, $t = 6$	**A1**	
	Integrates v to find F(t): $\frac{3t^3}{3} - \frac{30t^2}{2} + 72t$	**M2**	**M1** for any two terms correct
	Correct substitution for F(6) – F(4) or F(4) – F(6)	**M1**	**dep** on at least **M1** for integration **FT** *their* 4 and *their* 6 provided they are **both positive**
	4 (m)	**A1**	**dep** on all previous marks being awarded
8(b)	$[a =] 6t - 30$	**B1**	
	[When $t = 2$: $a = 6(2) - 30 =$] -18 (ms^{-2}) cao	**B1**	
9	Correctly eliminates x or y e.g. $4x^2 + 3x\left(-\frac{4}{x}\right) + \left(-\frac{4}{x}\right)^2 = 8$ oe or $4\left(-\frac{4}{y}\right)^2 + 3\left(-\frac{4}{y}\right)y + y^2 = 8$ oe	**M1**	
	Rearranges to a 3-term quadratic in x^2 or y^2 soi e.g. $4x^4 - 20x^2 + 16 = 0$ or $y^4 - 20y^2 + 64 = 0$	**A1**	
	Factorises or solves *their* 3-term quadratic in x^2 or y^2 soi : $(x^2 - 1)(x^2 - 4)$ or $(y^2 - 16)(y^2 - 4)$	**M1**	
	$x^2 = 1$, $x^2 = 4$ oe, nfww or $y^2 = 16$, $y^2 = 4$ oe, nfww	**A1**	
	$x = \pm 1$ $x = \pm 2$ $y = \mp 4$ $y = \mp 2$ oe, nfww	**A2**	**A1** for all 4 x values or all 4 y values
10(a)	$\frac{1}{3}e^{3x+3} + c$ or $\frac{1}{3}e^3 \times e^{3x} + c$ nfww	**B2**	**B1 for** ke^{3x+3} or $ke^3 \times e^{3x}$ where $k \neq \frac{1}{3}$ or 0