Question	Answer	Marks	Partial Marks
6(c)	[When $\theta = \frac{\pi}{3}$] $x = 4$ soi	**B1**	
	[When $\theta = \frac{\pi}{3}$] $y = 8$ soi	**B1**	
	[When $x = 4$ or $\theta = \frac{\pi}{3}$] $\frac{dy}{dx} = 4$	**M1**	**FT** *their* $\left.\frac{dy}{dx}\right\|_{x=4}$ providing non-zero
	$y - 8 = 4(x - 4)$ oe isw	**A1**	**FT** *their* $\left.\frac{dy}{dx}\right\|_{x=4}$ providing non-zero
7(a)	**[p** =] $-15\mathbf{i} + 36\mathbf{j}$ isw	**B2**	**B1** for multiplier $\frac{39}{\sqrt{5^2 + 12^2}}$ soi or unit vector $\frac{-5\mathbf{i} + 12\mathbf{j}}{\sqrt{5^2 + 12^2}}$
	[q =] $30\mathbf{i} - 16\mathbf{j}$ isw	**B2**	**B1** for multiplier $\frac{34}{\sqrt{15^2 + 8^2}}$ soi or unit vector $\frac{15\mathbf{i} - 8\mathbf{j}}{\sqrt{15^2 + 8^2}}$ soi
7(b)	[**p** + **q** =] $15\mathbf{i} + 20\mathbf{j}$ or $\begin{pmatrix} 15 \\ 20 \end{pmatrix}$ soi	**B1**	
	$\left[\left\|\mathbf{p} + \mathbf{q}\right\| = \sqrt{15^2 + 20^2} = \right] 25$	**B1**	**FT** *their*(**p** + **q**) of the form $\begin{pmatrix} x \\ y \end{pmatrix}$ or $x\mathbf{i} + y\mathbf{j}$ where $x \neq 0$, $y \neq 0$
	53.1[°] or 53.13[01…] rot to 2 or more dp OR 0.927 [rads] or 0.9272[95…] rot to 4 or more sf	**B2**	**M1 FT** *their*(**p** + **q**) of the form $\begin{pmatrix} x \\ y \end{pmatrix}$ or $x\mathbf{i} + y\mathbf{j}$ where $x \neq 0$, $y \neq 0$ and $x \neq y$ for $\tan(...) = \frac{their\,20}{their\,15}$ oe or $\cos(...) = \frac{their\,15}{their\,25}$ oe or $\sin(...) = \frac{their\,20}{their\,25}$ oe

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8(a)	$\frac{dy}{dx} = -5(x-1)^{-2} + 2$ oe	**B2**	**B1** for $\frac{d}{dx}(-5(x-1)^{-1}) = k(x-1)^{-2}$ soi
	$(x-1)^2 = \frac{5}{2}$ or $2x^2 - 4x - 3 = 0$	**M1**	**dep** on at least **B1**
	$x = 1 + \frac{\sqrt{10}}{2}$ oe, isw or 2.58[11…]	**A1**	implies **M1**
	$y = 2 + 2\sqrt{10}$ oe, isw or 8.32 to 8.325	**A1**	
8(b)	[Area of triangle =] 9 soi	**B1**	
	[Area under curve = F(x) =] $\left[5\ln(x-1) + \frac{2x^2}{2}\right]_2^4$ oe	**M2**	**M1** for $\int \frac{5}{x-1}\,dx = k\ln(x-1)$ $k \neq 0$ soi or for $5\ln x - 1$
	their 9 + F(4) – F(2)	**M1**	**dep** on at least **M1**
	21 + 5ln3 isw or 26.49 to 26.5	**A1**	
9(a)	Attempts to solve $a + 2d = 13$ and $a + 9d = 41$ oe	**M2**	**M1** for $a + 2d = 13$ and $a + 9d = 41$ soi
	$d = 4$ and $a = 5$	**A2**	**A1** for $d = 4$ or $a = 5$
9(b)	$\frac{n}{2}\{2(5) + (n-1)4\}$ soi	**M1**	**FT** *their a* and *their d*
	$2n^2 + 3n - 2555\,[*0]$	**A1**	where * could be = or any inequality sign
	Solves *their* 3-term quadratic of the form $ax^2 + bx + c$ [*0] by factorising or formula or *their* 3-term quadratic of the form $ax^2 + bx * c$ or better if completing the square	**M1**	
	35	**A1**	