Question	Answer	Marks	Partial Marks
1	$x^2 + 3x - 10 - 3x - 6$ * 0 oe	**M1**	Condone one sign or arithmetic error * can be = or any inequality sign
	Critical Values: 4 and –4	**A1**	
	$x > 4$ or $x < -4$	**A1**	Mark final answer
2	Eliminate one unknown $x(11-3x)+x^2=15$	**M1**	
	$2x^2-11x+15[=0]$	**A1**	
	Factorises or solves *their* 3-term quadratic	**M1**	
	$x=\frac{5}{2},\ y=\frac{7}{2}$ $x=3,\ y=2$	**A2**	**A1** for $x=\frac{5}{2}, x=3$ nfww or $y=\frac{7}{2}, y=2$ nfww
3(a)	$\frac{\mathrm{d}}{\mathrm{d}x}(\sin 3x)=3\cos 3x$ soi	**B1**	
	Applies the correct form of the quotient rule	**M1**	
	$\frac{\mathrm{d}y}{\mathrm{d}x}=\frac{(x+1)(3\cos 3x)-(2+\sin 3x)[1]}{(x+1)^2}$	**A1**	**FT** *their* $\frac{\mathrm{d}}{\mathrm{d}x}(\sin 3x)$
	$\frac{\mathrm{d}y}{\mathrm{d}x}=\frac{\left(\frac{\pi}{6}+1\right)\left(3\cos\frac{3\pi}{6}\right)-\left(2+\sin\frac{3\pi}{6}\right)[1]}{\left(\frac{\pi}{6}+1\right)^2}$	**M1**	
	$\left[\frac{\mathrm{d}y}{\mathrm{d}x}=\right]\ \frac{-3}{\left(\frac{\pi}{6}+1\right)^2}$	**A1**	not from wrong working

Question	Answer	Marks	Partial Marks
3(b)	[When $x = 0$] $y = 2$	**B1**	
	[When $x = 0$] $\frac{dy}{dx} = 1$	**B1**	**FT** *their* $\frac{dy}{dx}$
	$[m_{\perp} =] = -1$	**M1**	**FT** $\frac{-1}{their 1}$
	$y - 2 = -x$ oe	**A1**	**FT** *their* $m_{\perp}$
4	$\left(\sqrt{5}-2\right)a + \left(\sqrt{5}+2\right)b = 1$ oe, soi	**M1**	
	$2b - 2a = 1$	**A1**	
	$a + b = 0$ or $a\sqrt{5} + b\sqrt{5} = 0$	**A1**	
	Solves *their* linear simultaneous equations in a and b as far as $a = \ldots$ or $b = \ldots$	**M1**	**dep** on previous **M1**
	$a = -\frac{1}{4}, b = \frac{1}{4}$	**A1**	
5(a)	$\frac{dy}{dx} = 6\tan x \sec^2 x$	**B2**	**B1** for $\frac{d}{dx}(\tan^2 x) = 2(\tan x)^1 \sec^2 x$
5(b)	$6\tan x \sec^2 x - 3\sec x \operatorname{cosec} x = 0$ $3\sec x(2\tan x \sec x - \operatorname{cosec} x) = 0$ oe	**B1**	NB division by sec$x$ is **B0**
	$2\tan^2 x = 1$ oe	**B1**	
	$\tan x = [\pm]\sqrt{\frac{1}{2}}$ or [±] 0.707[1…]	**M1**	**FT** $\tan^2 x = k$ where $k > 0$
	35.3 or 35.2643… rot to 2 or more dp 215.3 or 215.2643… rot to 2 or more dp 144.7 or 144.7356… rot to 2 or more dp 324.7 or 324.7356… rot to 2 or more dp	**A2**	no extras in range **A1** for any two correct answers