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

Question	Answer	Marks	Partial Marks
6	$(m+1)x^2+(8-m)x+3=0$ oe, soi	**B1**	
	$(8-m)^2-4(m+1)(3)$	**M1**	
	$m^2-28m+52$ [*0] oe	**M1**	dep on previous **M1**; condone one sign error where * is = or any inequality sign
	Factorises or solves *their* 3-term quadratic expression or equation for CVs	**M1**	dep on use of b^2-4ac
	Finds correct CVs: 2, 26	**A1**	
	$2<m<26$	**A1**	Mark final answer
7(a)	$\log 5^{x-2}=\log 3+\log 2^{2x+3}$ soi	**M1**	
	$(x-2)\log 5=\log 3+(2x+3)\log 2$ oe	**M1**	dep on previous **M1**; Condone one sign or bracketing error
	$x=\dfrac{\log 3+3\log 2+2\log 5}{\log 5-2\log 2}$ soi	**A1**	
	$x=28.7$	**A1**	
7(b)	$\log_3\left(\dfrac{y^2+11}{9}\right)=\log_3(y-1)$ or $\log_3\left(\dfrac{y^2+11}{y-1}\right)=2$ oe	**B1**	
	$\dfrac{y^2+11}{9}=y-1$ or $\dfrac{y^2+11}{y-1}=9$ oe	**M1**	
	$y^2-9y+20=0$	**A1**	
	Solves *their* 3-term quadratic	**M1**	**dep** on previous **M1**
	$y=4,\ y=5$	**A1**	
8(a)	252	**B1**	