Question	Answer	Marks	Guidance
1	$a = 5$	**B1**	
	$b = 4$	**B1**	
	$c = -3$	**B1**	
2	$\tan^2\theta = \frac{1}{y+2}$ soi **or** $x = 1 + \tan^2\theta$ soi	**B1**	Must be in terms of $\tan^2\theta$
	Use of $\tan^2\theta + 1 = \sec^2\theta$ $\frac{1}{y+2} + 1 = x$ oe	**M1**	For a valid attempt to eliminate θ
	$y = \frac{1}{x-1} - 2$ or $y = \frac{3-2x}{x-1}$ oe	**2**	**Dep M1** for attempt to rearrange to obtain in the required form **A1** for a correct form
	Alternative $x = \frac{1}{\cos^2\theta}$ **and** $y + 2 = \frac{\cos^2\theta}{\sin^2\theta}$ soi	**(B1)**	
	$y + 2 = \frac{\frac{1}{x}}{1 - \frac{1}{x}}$ oe	**(M1)**	For a valid attempt to eliminate θ, making use of $\sin^2\theta + \cos^2\theta = 1$
	$y = \frac{1}{x-1} - 2$ or $y = \frac{3-2x}{x-1}$ oe	**(2)**	**Dep M1** for attempt to rearrange to obtain in the required form **A1** for a correct form
3(a)	Gradient = 4 soi	**B1**	
	Intercept = -3 soi	**B1**	
	$\lg(2y+1) = 4x^2 - 3$ oe	**M1**	For $\lg(2y+1) = \textit{their } m\left(x^2\right) + \textit{their } c$
	$y = \frac{1}{2}\left(10^{4x^2-3} - 1\right)$ or $y = \frac{\frac{10^{4x^2}}{1000} - 1}{2}$	**A1**	
3(b)	$y = 0$	**B1**	Must have at least 3 marks from part **(a)**