Question			Answer	Marks	AO	Guidance	
4	**(a)**			**M1**	**3.1a**	Attempt differentiation	
			$\dfrac{\mathrm{d}y}{\mathrm{d}x} = 6x^2 + 6x - k$	**A1**	**1.1**		
			At $x = 2$ there is a stationary point, so $\dfrac{\mathrm{d}y}{\mathrm{d}x} = 0$	**E1**	**2.1**	Explain the substitution step	
			$6 \times 2^2 + 6 \times 2 - k = 0$	**M1**	**1.1a**	Substitute $x = 2$ in their $\dfrac{\mathrm{d}y}{\mathrm{d}x} = 0$	
			$k = 36$	**A1FT**	**1.1**	FT their $\dfrac{\mathrm{d}y}{\mathrm{d}x} = 0$	
				[5]			
4	**(b)**		$\dfrac{\mathrm{d}^2 y}{\mathrm{d}x^2} = 12x + 6$ and $12 \times 2 + 6(= 30)$	**M1**	**1.1**	Attempt differentiation again and substitute $x = 2$, FT their $\dfrac{\mathrm{d}y}{\mathrm{d}x}$	**OR** **M1** Attempt to evaluate gradient or y either side
			$\dfrac{\mathrm{d}^2 y}{\mathrm{d}x^2} > 0$ hence minimum	**A1FT**	**2.2a**	Correct conclusion FT www from their $\dfrac{\mathrm{d}^2 y}{\mathrm{d}x^2}$ at $x = 2$	**A1** Correct values and conclusion **M1** For a complete sketch (all intercepts and both turning points identified) **A1** for conclusion given.
				[2]			