Question		n	Answer	Marks	AO	Guidance	
6	(a)		$y = \int (6x^2 - 20x + 6) dx = 2x^3 - 10x^2 + 6x + c$	M1	1.1a	Attempt to integrate	Do not allow if multiplied
			j j(m m m m m m				by <i>x</i>
			(2, 6) on curve so	M1	1.1a		
			$6 = 2 \times 2^3 - 10 \times 2^2 + 6 \times 2 + c [c = 18]$				
			So $y = 2x^3 - 10x^2 + 6x + 18$	A1	1.1b	Complete equation must be seen	
				[3]			
6	(b)		$y = 2(x+1)(x^2-6x+9)$ or $2(x^2-2x-3)(x-3)$	M1	2.1	o.e. Attempt to remove all brackets leading to a cubic expression.	
						A quadratic factor must be seen.	
			So $y = 2x^3 - 10x^2 + 6x + 18$	E 1	2.1	Correct expression found	
			Alternative method				
			Division of $2x^3 - 10x^2 + 6x + 18$ by $(x+1)$ or	M1		Leading to a product of linear factors. A	quadratic factor must be
			(x-3) and attempt to factorise quadratic factor			seen.	
			$2(x+1)(x-3)^2$	E1		Correct expression found	
			Alternative method				
			[By Calculator] the roots of $y = 0$ are -1 and	M1		Method using the factor theorem used with roots found by calculator or substitution in their (a)	
			3 [repeated] so $(x+1)$ and $(x-3)$ are				
			factors				
			(x-3) is a repeated factor and the leading	E 1		Fully explained	
			coefficient is 2 so $y = 2(x+1)(x-3)^2$				
				[2]			

Question		n	Answer	Marks	AO	Guidance	
6	(c)			B1	1.1b	Correct shape	
				B1	1.1b	y-intercept at 18 labelled	
				B1	1.1b	Curve crosses x-axis at $(-1, 0)$ and touches at $(3, 0)$	
				[3]			