

5	(a)	$\int (x^2 - 3x) dx$ $= \frac{x^3}{3} - \frac{3x^2}{2} + c$ $20 = \frac{6^3}{3} - \frac{3 \times 6^2}{2} + c \quad (\Rightarrow c = 2)$ $y = \frac{x^3}{3} - \frac{3x^2}{2} + 2$	<p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p> <p>[4]</p>	<p>3.1a</p> <p>1.1</p> <p>2.1</p> <p>1.1</p>	<p>\geq one term or both powers correct. May be implied by result</p> <p>Allow without "+ c"</p> <p>Substitute $x = 6$ into their integral, dep M1, & = 20</p> <p>Correct answer, including "y = ". Allow $f(x) = \dots$</p> <p>NB, if no working seen for finding c, but fully correct answer given: SC3</p>
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Question		Answer	Marks	AO	Guidance
5	(b)	$\int_1^p \left(\frac{x^3}{3} - \frac{3x^2}{2} + 2\right) dx$	M1	2.1	ft their equation, dep cubic. \geq two terms or all three powers correct. May be implied by result
		$= \left[\frac{x^4}{12} - \frac{x^3}{2} + 2x \right]_1^p$	A1ft	1.1	Correct integral of their curve, dep quartic
			M1	1.1	Substitute limits 1 and p , dep integration attempted
		$= \frac{p^4}{12} - \frac{p^3}{2} + 2p - \frac{19}{12}$ oe	A1ft	1.1	ft their integral, dep their integral is a quartic.
			[4]		