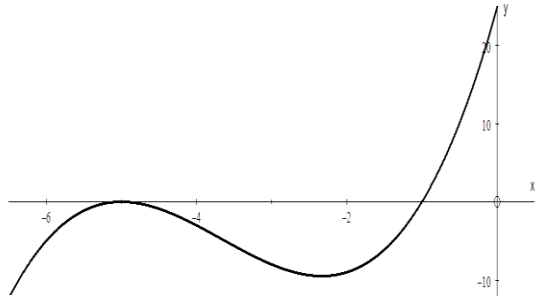


**Edexcel GCE
Core Mathematics C1
Bronze Level B2
(Mark Scheme)**

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Question Number	Scheme	Marks
1. (a)	$4x^3 + 3x^{-\frac{1}{2}}$	M1A1A1 (3)
(b)	$\frac{x^5}{5} + 4x^{\frac{3}{2}} + C$	M1A1A1 (3) [6]
2.	$(\int =) \frac{12x^6}{6}, -\frac{3x^3}{3}, +\frac{4x^{\frac{4}{3}}}{\frac{4}{3}}, (+c)$ $= 2x^6 - x^3 + 3x^{\frac{4}{3}} + c$	M1A1, A1, A1 A1 [5]
3. (a)	$\left(\frac{dy}{dx}\right) = 6x^1 + \frac{4}{2}x^{-\frac{1}{2}}$ or $\left(6x + 2x^{-\frac{1}{2}}\right)$	M1 A1 (2)
(b)	$6 + -x^{-\frac{3}{2}}$ or $\underline{6 + -1 \times x^{-\frac{3}{2}}}$	M1 A1ft (2)
(c)	$x^3 + \frac{8}{3}x^{\frac{3}{2}} + C$	M1 A1 A1 (3) [7]
4. (a)	$f'(x) = 3 + 3x^2$	M1 A1 (2)
(b)	$3 + 3x^2 = 15$ and start to try and simplify $x^2 = k \rightarrow x = \sqrt{k}$ (ignore \pm) $x = 2$ (ignore $x = -2$)	M1 M1 A1 (3) [5]
5. (a)	$[x_2 =] a - 3$	B1 (1)
(b)	$[x_3 =] ax_2 - 3$ or $a(a - 3) - 3$ $= a(a - 3) - 5 = a^2 - 3a - 3$ (*)	B1 A1 cso (2)
(c)	$a^2 - 3a - 3 = 7$ $a^2 - 3a - 10 = 0$ or $a^2 - 3a = 10$ $(a - 5)(a + 2) = 0$ $a = 5$ or -2	M1 M1 A1 (3) [6]

Question Number	Scheme	Marks
<p>6. (a)</p> <p>(b)</p> <p>(c)</p> <p>(d)</p>	<p>Boy's Sequence: 10, 15, 20, 25, ...</p> <p>$\{a = 10, d = 5 \Rightarrow T_{15} =\} a + 14d = 10 + 14(5); = 80$ or $0.1 + 14(0.05); = \pounds 0.80$</p> <p>$\{S_{60} =\} \frac{60}{2} [2(10) + 59(5)]$ $= 30(315) = 9450$ or $\pounds 94.50$</p> <p>Boy's Sister's Sequence: 10, 20, 30, 40, ...</p> <p>$\{a = 10, d = 10 \Rightarrow S_m =\} \frac{m}{2} (2(10) + (m-1)(10))$ $\left(\text{or } \frac{m}{2} \times 10(m+1) \text{ or } 5m(m+1) \right)$</p> <p>$63 \text{ or } 6300 = \frac{m}{2} (2(10) + (m-1)(10))$</p> <p>$6300 = \frac{m}{2} (10)(m+1)$ or $12600 = 10m(m+1)$</p> <p>$1260 = m(m+1)$</p> <p>$35 \times 36 = m(m+1)$ (*)</p> <p>$\{m =\} 35$</p>	<p>M1; A1 (2)</p> <p>M1 A1 A1 (3)</p> <p>M1 A1</p> <p>dM1</p> <p>A1 cso (4)</p> <p>B1 (1)</p> <p>[10]</p>
<p>7.</p>	<p>$\frac{3x^2 + 2}{x} = 3x + 2x^{-1}$</p> <p>$(y' =) 24x^2, -2x^{-\frac{1}{2}}, +3 - 2x^{-2}$</p> <p>$\left[24x^2 - 2x^{-\frac{1}{2}} + 3 - 2x^{-2} \right]$</p>	<p>M1 A1</p> <p>M1 A1 A1A1</p> <p>[6]</p>

Question Number	Scheme	Marks
<p>8. (a)</p>	 <p>Horizontal translation</p> <p>Touching at $(-5, 0)$.</p> <p>The right hand tail of their cubic shape crossing at $(-1, 0)$.</p>	<p>B1</p> <p>B1</p> <p>B1</p> <p>(3)</p> <p>B1</p> <p>(1)</p> <p>M1 A1</p> <p>(2)</p> <p>[6]</p>
<p>9. (a)</p> <p>(b)</p> <p>(c)</p> <p>(d)</p> <p>(e)</p>	<p>$(8 - 3 - k = 0)$ so $k = 5$</p> <p>$2y = 3x + k$ $y = \frac{3}{2}x + \dots$ and so $m = \frac{3}{2}$ oe</p> <p>Perpendicular gradient = $-\frac{2}{3}$ Equation of line is: $y - 4 = -\frac{2}{3}(x - 1)$ $3y + 2x - 14 = 0$ oe</p> <p>$y = 0, \Rightarrow B(7, 0)$ or $x = 7$ $x = 7$ or $-\frac{c}{a}$</p> <p>$AB^2 = (7 - 1)^2 + (4 - 0)^2$ $AB = \sqrt{52}$ or $2\sqrt{13}$</p>	<p>B1</p> <p>(1)</p> <p>M1</p> <p>A1</p> <p>(2)</p> <p>B1ft</p> <p>M1A1ft</p> <p>A1</p> <p>(4)</p> <p>M1A1ft</p> <p>(2)</p> <p>M1</p> <p>A1</p> <p>(2)</p> <p>[11]</p>

Question Number	Scheme	Marks
<p>10. (a)</p> <p>(b)</p> <p>(c)</p> <p>(d)</p>	$QR = \sqrt{(7-1)^2 + (0-3)^2}$ $= \sqrt{36+9} \text{ or } \sqrt{45}$ $= 3\sqrt{5} \text{ or } a=3$	<p>M1</p> <p>A1</p> <p>A1 (3)</p>
	<p>Gradient of QR (or l_1) = $\frac{3-0}{1-7}$ or $\frac{3}{-6}, = -\frac{1}{2}$</p> <p>Gradient of l_2 is $-\frac{1}{-\frac{1}{2}}$ or 2</p> <p>Equation for l_2 is: $y-3 = 2(x-1)$ or $\frac{y-3}{x-1} = 2$ [or $y = 2x + 1$]</p>	<p>M1 A1</p> <p>M1</p> <p>M1 A1 ft</p> <p>(5)</p>
	<p>P is (0, 1)</p> <p>(allow “$x = 0, y = 1$” but it must be clearly identifiable as P)</p>	<p>B1 (1)</p>
	$PQ = \sqrt{(1-x_p)^2 + (3-y_p)^2}$ $PQ = \sqrt{1^2 + 2^2} = \sqrt{5}$ <p>Area of triangle is $\frac{1}{2}QR \times PQ = \frac{1}{2}3\sqrt{5} \times \sqrt{5}, = \frac{15}{2}$ or 7.5</p>	<p>M1</p> <p>A1</p> <p>M1 A1 (4)</p> <p>[13]</p>

Statistics for C1 Practice Paper Bronze Level B2

Qu	Max score	Modal score	Mean %	Mean score for students achieving grade:							
				ALL	A*	A	B	C	D	E	U
1	6		90	5.39	5.95	5.81	5.74	5.64	5.51	5.39	4.43
2	5		89	4.43	5.00	4.92	4.83	4.66	4.51	4.38	3.44
3	7		86	6.00		6.82	6.64	6.45	6.17	5.83	4.21
4	5		90	4.49		4.90	4.83	4.75	4.63	4.47	3.39
5	6		83	4.97		5.98	5.85	5.62	5.13	4.39	2.33
6	10		75	7.53	9.60	9.34	8.67	8.06	7.47	6.74	4.66
7	6		85	5.12	5.94	5.90	5.76	5.62	5.35	4.87	3.34
8	6		79	4.74	5.96	5.82	5.53	5.21	4.80	4.34	3.13
9	11		73	8.07	10.89	10.70	10.22	9.62	8.59	7.34	4.49
10	13		67	8.67		12.17	10.81	9.62	7.96	5.95	2.51
	75		79	59.41		72.36	68.88	65.25	60.12	53.70	35.93