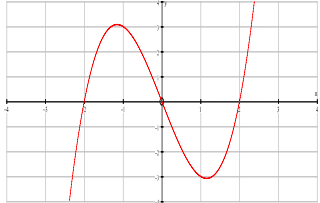



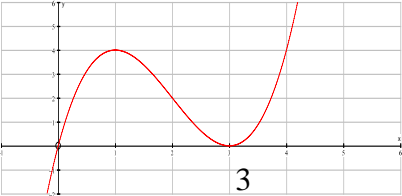

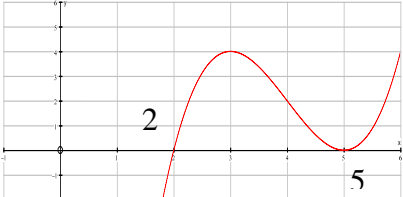
**Edexcel GCE
Core Mathematics C1
Bronze Level B4
(Mark Scheme)**

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Question Number	Scheme	Marks
1.	$9 - 5$ or $3^2 + 3\sqrt{5} - 3\sqrt{5} - \sqrt{5} \times \sqrt{5}$ or $3^2 - \sqrt{5} \times \sqrt{5}$ or $3^2 - (\sqrt{5})^2$ $= 4$	M1 A1 cso [2]
2. (a)	$(7 + \sqrt{5})(3 - \sqrt{5}) = 21 - 5 + 3\sqrt{5} - 7\sqrt{5}$ $= 16, -4\sqrt{5}$ (1 st A for 16, 2 nd A for $-4\sqrt{5}$)	M1 A1, A1 (3)
(b)	$\frac{7 + \sqrt{5}}{3 + \sqrt{5}} \times \frac{3 - \sqrt{5}}{3 - \sqrt{5}}$ Correct denominator without surds, i.e. $9 - 5$ or 4 $4 - \sqrt{5}$ or $4 - 1\sqrt{5}$	M1 A1 A1 (3) [6]
3. (a)	$\frac{dy}{dx} = 6x^2 - 6x^{-3}$	M1 A1 A1 (3)
(b)	$\frac{2x^4}{4} + \frac{3x^{-1}}{-1} (+ C)$ $\frac{x^4}{2} - 3x^{-1} + C$	M1 A1 A1 (3) [6]
4. (a)	$(x_2) = a + 5$	B1 (1)
(b)	$(x_3) = a^n(a+5)^n + 5$ $= a^2 + 5a + 5$ (*)	M1 A1 cso (2)
(c)	$41 = a^2 + 5a + 5 \Rightarrow a^2 + 5a - 36 (= 0)$ or $36 = a^2 + 5a$ $(a + 9)(a - 4) = 0$ $a = 4$ or -9	M1 M1 A1 (3) [6]

Question Number	Scheme	Marks
<p>5. (a)</p> <p>(b)</p>	$\left(2x^{-\frac{1}{2}} + 3x^{-1}\right)$ $p = -\frac{1}{2}, \quad q = -1$ $p = -1 \quad q = -1$ $\left(y = 5x - 7 + 2x^{-\frac{1}{2}} + 3x^{-1}\right)$ $\left(\frac{dy}{dx} = \right) \quad 5 \quad (\text{or } 5x^0) \quad (5x - 7 \text{ correctly differentiated})$ <p>Attempt to differentiate either $2x^p$ with a fractional p, giving kx^{p-1} ($k \neq 0$), (the fraction p could be in decimal form) or $3x^q$ with a negative q, giving kx^{q-1} ($k \neq 0$)</p>	<p>B1 B1</p> <p>(2)</p> <p>B1</p> <p>M1</p> <p>A1ft A1ft</p> <p>(4)</p> <p>[6]</p>
<p>6. (a)</p> <p>(b)</p>	$2x^{\frac{3}{2}} \quad \text{or} \quad p = \frac{3}{2} \quad (\text{Not } 2x\sqrt{x})$ $-x \quad \text{or} \quad -x^1 \quad \text{or} \quad q = 1$ $\left(\frac{dy}{dx} = \right) 20x^3 + 2 \times \frac{3}{2} x^{\frac{1}{2}} - 1$ $= \underline{20x^3 + 3x^{\frac{1}{2}} - 1}$	<p>B1</p> <p>B1</p> <p>(2)</p> <p>M1</p> <p>A1 A1ft</p> <p>A1ft</p> <p>(4)</p> <p>[6]</p>
<p>7.</p>	$(f(x) =) \frac{12x^3}{3} - \frac{8x^2}{2} + x(+c)$ $(f(-1) = 0 \Rightarrow) 0 = 4 \times (-1) - 4 \times 1 - 1 + c$ $c = 9$ $[f(x) = 4x^3 - 4x^2 + x + 9]$	<p>M1 A1 A1</p> <p>M1</p> <p>A1</p> <p>[5]</p>

Question Number	Scheme	Marks
8. (a)	$b^2 - 4ac = (k - 3)^2 - 4(3 - 2k)$ $k^2 - 6k + 9 - 4(3 - 2k) > 0 \quad \text{or} \quad (k - 3)^2 - 12 + 8k > 0 \quad \text{or better}$ $k^2 + 2k - 3 > 0 *$	M1 M1 A1 cso (3)
8. (b)	$(k + 3)(k - 1) [= 0]$ <p>Critical values are $k = 1$ or -3 (choosing "outside" region) $k > 1$ or $k < -3$</p>	M1 A1 M1 A1 cao (4) [7]
9. (a)	$x(x^2 - 4)$ $= x(x - 2)(x + 2)$	B1 M1 A1 (3)
9. (b)		Shape  (2 turning points required) Through (or touching) origin Crossing x -axis or "stopping at x -axis" (not a turning point) at $(-2, 0)$ and $(2, 0)$.
9. (c)	<u>Either</u> $y = 3$ (at $x = -1$) <u>or</u> $y = 15$ (at $x = 3$) Gradient = $\frac{"15-3"}{3-(-1)} (= 3)$ $y - "15" = m(x - 3)$ or $y - "3" = m(x - (-1))$, $y - 15 = 3(x - 3)$ or the <u>correct</u> equation in <u>any</u> form, $y = 3x + 6$	B1 M1 M1 A1 A1 (5)
9. (d)	$AB = \sqrt{("15 - 3")^2 + (3 - (-1))^2}$ $= \sqrt{160} (= \sqrt{16} \sqrt{10}) = 4\sqrt{10}$	M1 A1 (2) [13]

Question Number	Scheme	Marks
<p>10. (a)</p> <p>(b)</p> <p>(c)</p>	$x(x^2 - 6x + 9)$ $= x(x-3)(x-3)$  <p>Shape </p> <p><u>Through</u> origin (<u>not</u> touching) Touching x-axis only once touching at (3, 0), or 3 on x-axis [Must be on graph not in a table]</p>  <p>Moved horizontally (either way) (2, 0) and (5, 0), or 2 and 5 on x-axis</p>	<p>B1</p> <p>M1 A1 (3)</p> <p>B1</p> <p>B1</p> <p>B1</p> <p>B1ft (4)</p> <p>M1</p> <p>A1 (2)</p> <p>[9]</p>
<p>11. (a)</p> <p>(b)</p>	$\left(y = \frac{3x^2}{2} - \frac{5x^2}{2} - 2x + c\right)$ $f(4) = 5 \Rightarrow 5 = \frac{3}{2} \times 16 - 10 \times 2 - 8 + c$ $c = 9$ $\left[f(x) = \frac{3}{2}x^2 - 10x^{\frac{1}{2}} - 2x + 9 \right]$ $m = 3 \times 4 - \frac{5}{2} - 2 \left(= 7.5 \text{ or } \frac{15}{2} \right)$ <p>Equation is: $y - 5 = \frac{15}{2}(x - 4)$</p> $\underline{2y - 15x + 50 = 0} \quad \text{o.e.}$	<p>M1A1A1</p> <p>M1</p> <p>A1 (5)</p> <p>M1</p> <p>M1A1</p> <p>A1 (4)</p> <p>[9]</p>

Statistics for C1 Practice Paper Bronze Level B4

Qu	Max score	Modal score	Mean %	ALL	A*	A	B	C	D	E	U
1	2		90	1.80		1.95	1.91	1.87	1.84	1.78	1.44
2	6		87	5.22		5.92	5.74	5.49	5.15	4.96	3.75
3	6		81	4.84		5.72	5.51	5.29	4.95	4.45	2.99
4	6		88	5.26	5.98	5.96	5.88	5.79	5.60	5.42	4.00
5	6		80	4.81		5.94	5.73	5.53	5.32	4.72	3.24
6	6		77	4.63		5.82	5.41	5.13	4.61	4.09	3.05
7	5		80	4.00	4.97	4.91	4.81	4.61	4.22	3.74	2.36
8	7		67	4.68	6.83	6.63	5.87	5.23	4.40	3.64	2.38
9	13		72	9.34		12.52	11.69	10.75	9.00	7.78	4.93
10	9		67	6.00		8.02	7.08	6.46	5.73	4.87	2.88
11	9		63	5.66	8.74	8.29	7.42	6.49	5.34	4.01	1.79
	75		75	56.24		71.68	67.05	62.64	56.16	49.46	32.81