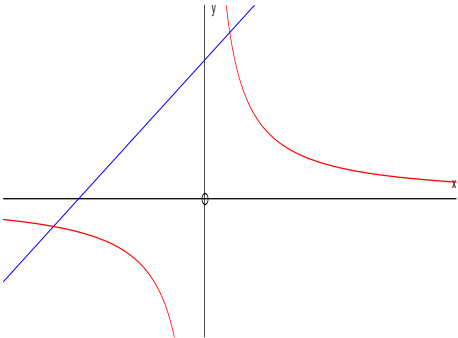


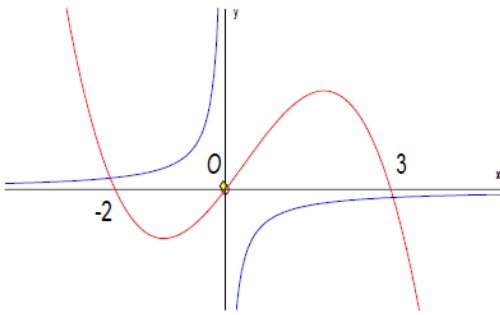
**Edexcel GCE
Core Mathematics C1
Silver Level S2
(Mark Scheme)**

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Question Number	Scheme	Marks
<p>1. (a)</p> <p>(b)</p>	$(3\sqrt{7})^2 = 63$ $(8 + \sqrt{5})(2 - \sqrt{5}) = 16 - 5 + 2\sqrt{5} - 8\sqrt{5}$ $= 11, -6\sqrt{5}$	<p>B1</p> <p>(1)</p> <p>M1</p> <p>A1, A1</p> <p>(3)</p> <p>[4]</p>
<p>2</p>	$\left(\int\right) \frac{10x^5}{5} - \frac{4x^2}{2}, -\frac{3x^{\frac{1}{2}}}{\frac{1}{2}}$ $= \underline{2x^5 - 2x^2 - 6x^{\frac{1}{2}} + c}$	<p>M1 A1,</p> <p>A1</p> <p>A1</p> <p>[4]</p>
<p>3. (a)</p> <p>(b)</p>	$5x > 20$ $\underline{x > 4}$ $x^2 - 4x - 12 = 0$ $(x+2)(x-6) [= 0]$ $x = 6, -2$ $x < -2, x > 6$	<p>M1</p> <p>A1 (2)</p> <p>M1</p> <p>A1</p> <p>M1,</p> <p>A1ft (4)</p> <p>[6]</p>
<p>4. (a)</p> <p>(b)</p>	$u_2 = 9, u_{n+1} = 2u_n - 1, n \geq 1$ $u_3 = 2u_2 - 1 = 2(9) - 1 (=17)$ $u_4 = 2u_3 - 1 = 2(17) - 1 = 33$ $\sum_{r=1}^4 u_r = u_1 + u_2 + u_3 + u_4$ $(u_1) = 5$ $\sum_{r=1}^4 u_r = "5" + 9 + "17" + "33" = 64$	$u_3 = 2(9) - 1.$ <p>M1</p> <p>Can be implied by $u_3 = 17$</p> <p>Both $u_3 = 17$ and $u_4 = 33$</p> <p>A1</p> <p>(2)</p> <p>B1</p> <p>M1 A1</p> <p>(3)</p> <p>[5]</p>

Question Number	Scheme	Marks
<p>5. (a)</p> <p>(b)</p> <p>(c)(i)</p> <p>(ii)</p>	$(a_2 =) 5k + 3$ $(a_3 =) 5(5k + 3) + 3$ $= 25k + 18 \quad (*)$ $a_4 = 5(25k + 18) + 3 \quad (= 125k + 93)$ $\sum_{r=1}^4 a_r = k + (5k + 3) + (25k + 18) + (125k + 93)$ $= 156k + 114$ $= 6(26k + 19) \quad (\text{or explain each term is divisible by 6})$	<p>B1</p> <p>(1)</p> <p>M1</p> <p>A1 cso</p> <p>(2)</p> <p>M1</p> <p>M1</p> <p>A1 cao</p> <p>A1 ft</p> <p>(4)</p> <p>[7]</p>
<p>6. (a)</p> <p>(b)</p>	 $2x + 5 = \frac{3}{x}$ $2x^2 + 5x - 3 [= 0] \quad \text{or} \quad 2x^2 + 5x = 3$ $(2x - 1)(x + 3) [= 0]$ $x = -3 \quad \text{or} \quad \frac{1}{2}$ $y = \frac{3}{-3} \quad \text{or} \quad 2 \times (-3) + 5 \quad \text{or} \quad y = \frac{3}{\frac{1}{2}} \quad \text{or} \quad 2 \times \left(\frac{1}{2}\right) + 5$ <p>Points are <u>$(-3, -1)$</u> and <u>$(\frac{1}{2}, 6)$</u> (correct pairings)</p>	<p>B1</p> <p>M1</p> <p>A1</p> <p>(3)</p> <p>B1</p> <p>A1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A1ft</p> <p>(6)</p> <p>[9]</p>

Question Number	Scheme	Marks
7.	$[f(x) =] \frac{3x^3}{3} - \frac{3x^2}{2} + 5x [+c] \quad \text{or} \quad \left\{ x^3 - \frac{3}{2}x^2 + 5x(+c) \right\}$ $10 = 8 - 6 + 10 + c$ $c = -2$ $f(1) = 1 - \frac{3}{2} + 5 \quad "-2" = \frac{5}{2} \quad (\text{o.e.})$	M1A1 M1 A1 A1ft [5]
8. (a)	$m_{AB} = \frac{4-0}{7-2} \quad \left(= \frac{4}{5} \right)$ <p>Equation of AB is: $y-0 = \frac{4}{5}(x-2)$ or $y-4 = \frac{4}{5}(x-7)$ (o.e.)</p> $4x - 5y - 8 = 0 \quad (\text{o.e.})$	M1 M1 A1 (3) M1 A1 (2) B1 (1) M1 A1 (2) [8]
9. (a)	$4x \rightarrow kx^2 \quad \text{or} \quad 6\sqrt{x} \rightarrow kx^{\frac{3}{2}} \quad \text{or} \quad \frac{8}{x^2} \rightarrow kx^{-1}$ $f(x) = 2x^2, \quad -4x^{\frac{3}{2}}, \quad -8x^{-1} \quad (+C)$ <p>At $x = 4, y = 1$: $1 = (2 \times 16) - (4 \times 4^{\frac{3}{2}}) - (8 \times 4^{-1}) + C$</p> $C = 3$	M1 A1A1A1 M1 A1 (6) M1 M1 M1 A1 (4) [10]
9. (b)	$f'(4) = 16 - (6 \times 2) + \frac{8}{16} = \frac{9}{2} (= m)$ <p>Gradient of normal is $-\frac{2}{9} (= -\frac{1}{m})$</p> <p>Eqn. of normal: $y-1 = -\frac{2}{9}(x-4)$</p>	

Question Number	Scheme	Marks
<p>10. (a)</p>  <p>(b) “2” solutions Since only “2” intersections</p>	<p>(i) correct shape (-ve cubic) Crossing at (-2, 0) Through the origin Crossing at (3, 0) (ii) 2 branches in correct quadrants not crossing axes One intersection with cubic on each branch</p>	<p>B1 B1 B1 B1 B1 B1 (6) B1ft dB1ft (2) [8]</p>
<p>11. (a)</p> <p>$y = x + 2 \Rightarrow x^2 + 4(x + 2)^2 - 2x = 35$</p> <p>Alternative: $\frac{2x - x^2 + 35}{4} = (x + 2)^2$ or $\sqrt{\frac{2x - x^2 + 35}{4}} = (x + 2)$</p> <p>$5x^2 + 14x - 19 = 0$</p> <p>$(5x + 19)(x - 1) = 0 \Rightarrow x = ..$</p> <p>$x = -\frac{19}{5}, x = 1$</p> <p>$y = -\frac{9}{5}, y = 3$</p> <p>Coordinates are $(-\frac{19}{5}, -\frac{9}{5})$ and $(1, 3)$</p> <p>(b)</p> <p>$d^2 = (1 - -\frac{19}{5})^2 + (3 - -\frac{9}{5})^2$ or</p> <p>$d = \sqrt{(1 - -\frac{19}{5})^2 + (3 - -\frac{9}{5})^2}$</p> <p>$d = \frac{24}{5}\sqrt{2}$</p>		<p>M1 M1 dM1 A1 for both M1 A1 (6) M1A1ft A1cao (3) [9]</p>

Statistics for C1 Practice Paper Silver Level S2

Qu	Max score	Modal score	Mean %	Mean score for students achieving grade:							
				ALL	A*	A	B	C	D	E	U
1	4		85	3.41		3.87	3.72	3.60	3.44	3.22	2.48
2	4		83	3.33	3.95	3.82	3.68	3.54	3.4	3.22	2.53
3	6		78	4.68	5.85	5.66	5.12	4.70	4.32	4.16	3.39
4	5		79	3.95	5.00	4.65	4.34	3.94	3.73	3.36	2.53
5	7		79	5.53	6.87	6.73	6.39	6.07	5.69	5.10	3.16
6	9		73	6.57		8.76	8.29	7.52	6.39	4.80	2.24
7	5		74	3.69	4.88	4.84	4.59	4.35	3.80	3.51	1.93
8	8		65	5.17	7.59	7.05	6.11	5.42	4.85	4.11	2.41
9	10		65	6.52		9.61	8.69	7.72	6.38	5.35	2.91
10	8		63	5.05	7.80	7.26	6.49	5.57	4.77	4.05	2.53
11	9		82	7.38	8.90	8.65	7.80	7.39	6.50	5.68	3.00
	75		74	55.28		70.90	65.22	59.82	53.27	46.56	29.11