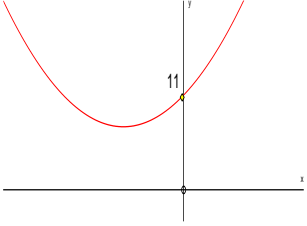
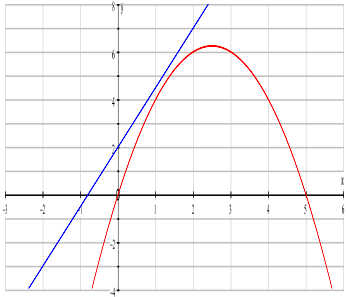
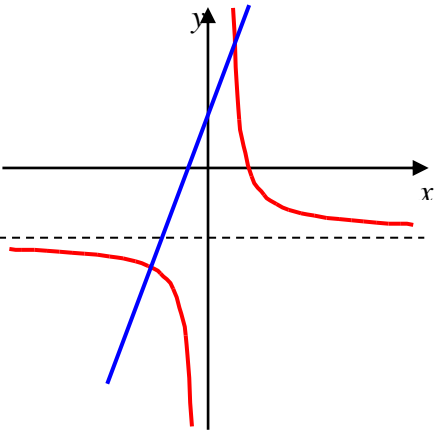


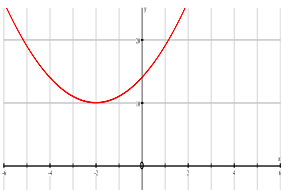
**Edexcel GCE
Core Mathematics C1
Gold Level G1
(Mark Scheme)**

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Question Number	Scheme	Marks
1.	$x(1 - 4x^2)$ Accept $x(-4x^2 + 1)$ or $-x(4x^2 - 1)$ or $-x(-1 + 4x^2)$ or even $4x(\frac{1}{4} - x^2)$ or equivalent quadratic (or initial cubic) into two brackets $x(1 - 2x)(1 + 2x)$ or $-x(2x - 1)(2x + 1)$ or $x(2x - 1)(-2x - 1)$	B1 M1 A1 [3]
2.	$(8^{2x+3} = (2^3)^{2x+3}) = 2^{3(2x+3)}$ or 2^{ax+b} with $a = 6$ or $b = 9$ $= 2^{6x+9}$ or $= 2^{3(2x+3)}$ as final answer with no errors or $(y =) 6x + 9$ or $3(2x + 3)$	M1 A1 [2]
3. (a)	$(x+3)^2 + 2$ or $p = 3$ or $\frac{6}{2}$ $q = 2$	B1 B1 (2)
(b)	 <p>U shape with min in 2nd quad (Must be above x-axis and not on y=axis)</p>	B1
(c)	$b^2 - 4ac = 6^2 - 4 \times 11$ $= \underline{\underline{-8}}$	B1 (2)
4. (a)	$x(5 - x) = \frac{1}{2}(5x + 4)$ (o.e.) $2x^2 - 5x + 4(=0)$ (o.e.) e.g. $x^2 - 2.5x + 2(=0)$ $b^2 - 4ac = (-5)^2 - 4 \times 2 \times 4$ $= 25 - 32 < 0$, so no roots <u>or</u> no intersections <u>or</u> no solutions	M1 A1 M1 A1 (4)
(b)	 <p>Curve: \cap shape and passing through (0, 0) \cap shape and passing through (5, 0) Line : +ve gradient and no intersections with C. If no C drawn score B0 Line passing through (0, 2) and (-0.8, 0) marked on axes</p>	B1 B1 B1 B1 (4) [8]

Question Number	Scheme	Marks
<p>5. (a)</p> 	<p>$y = \frac{2}{x}$ is translated up or down.</p> <p>$y = \frac{2}{x} - 5$ is in the correct position.</p> <p>Intersection with x-axis at $(\frac{2}{5}, \{0\})$</p> <p>only</p> <p>$y = 4x + 2$: attempt at straight line, with positive gradient with positive y intercept.</p> <p>Intersection with x-axis at $(-\frac{1}{2}, \{0\})$ and y-axis at $(\{0\}, 2)$.</p> <p>(b) Asymptotes : $x = 0$ (or y-axis) and $y = -5$.</p> <p>(c) Method 1: $\frac{2}{x} - 5 = 4x + 2$</p> <p>$4x^2 + 7x - 2 = 0 \Rightarrow x =$ $x = -2, \frac{1}{4}$</p> <p>When $x = -2, y = -6,$ When $x = \frac{1}{4}, y = 3$</p> <p>Method 2: $\frac{y-2}{4} = \frac{2}{y+5}$</p> <p>$y^2 + 3y - 18 = 0 \rightarrow y =$ $y = -6, 3$</p> <p>When $y = -6, x = -2$ When $y = 3, x = \frac{1}{4}.$</p>	<p>M1</p> <p>A1</p> <p>B1</p> <p>B1</p> <p>B1</p> <p>(5)</p> <p>B1B1</p> <p>(2)</p> <p>M1</p> <p>dM1</p> <p>A1</p> <p>M1A1</p> <p>(5)</p> <p>[12]</p>
<p>6. (a)</p> <p>$600 = 200 + (N - 1)20 \Rightarrow N = \dots$</p> <p>$N = 21$</p> <p>(b)</p> <p>$S = \frac{21}{2}(2 \times 200 + 20 \times 20)$ or $\frac{21}{2}(200 + 600)$ or</p> <p>$S = \frac{20}{2}(2 \times 200 + 19 \times 20)$ or $\frac{20}{2}(200 + 580)$</p> <p>(= 8400 or 7800)</p> <p>$600 \times (52 - "N") (= 18600)$</p> <p>So total is 27000</p>		<p>M1</p> <p>A1 cso</p> <p>(2)</p> <p>M1A1</p> <p>M1A1ft</p> <p>A1 cao</p> <p>(5)</p> <p>[7]</p>

Question Number	Scheme	Marks
7. (a)	$x^2 + kx + (8 - k) \quad (= 0)$ $b^2 - 4ac = k^2 - 4(8 - k)$ $b^2 - 4ac < 0 \quad \Rightarrow k^2 + 4k - 32 < 0$	M1 M1 A1cso (3)
7. (b)	$(k + 8)(k - 4) = 0 \quad k = \dots$ $k = -8 \quad k = 4$ Choosing 'inside' region (between the two k values) $-8 < k < 4 \quad \text{or} \quad 4 > k > -8$	M1 A1 M1 A1 (4) [7]
8. (a)	Series has 50 terms $S = \frac{1}{2}(50)(2 + 100) = 2550 \quad \text{or} \quad S = \frac{1}{2}(50)(4 + 49 \times 2) = 2550$	B1 M1 A1 (3)
8. (b)(i)	$\frac{100}{k}$	B1
8. (b)(ii)	Sum: $\frac{1}{2} \left(\frac{100}{k} \right) (k + 100) \quad \text{or} \quad \frac{1}{2} \left(\frac{100}{k} \right) \left(2k + \left(\frac{100}{k} - 1 \right) k \right)$ $= 50 + \frac{5000}{k} \quad (*)$	M1 A1 A1 cso (4)
8. (c)	$50^{\text{th}} \text{ term} = a + (n - 1)d$ $= (2k + 1) + 49(2k + 3) \quad \text{Or} \quad 2k + 49(2k) + 1 + 49(3)$ $= 100k + 148 \quad = 100k + 148$	M1 A1 (2) [9]

Question Number	Scheme	Marks
<p>9. (a)</p> <p>(b)</p> <p>(c)</p>	$(x+2k)^2 \text{ or } \left(x + \frac{4k}{2}\right)^2$ $(x \pm F)^2 \pm G \pm 3 \pm 11k$ <p>(where F and G are <u>any</u> functions of k, not involving x)</p> $(x+2k)^2 - 4k^2 + (3+11k)$ <p>Accept part (b) solutions seen in part (a).</p> $"4k^2 - 11k - 3" = 0 \quad (4k+1)(k-3) = 0 \quad k = -\frac{1}{4} \text{ and } 3$ <p>Using $b^2 - 4ac < 0$ for no real roots, i.e. "$4k^2 - 11k - 3 < 0$", to establish inequalities involving their <u>two</u> critical values m and n (even if the inequalities are <u>wrong</u>, e.g. $k < m, k < n$).</p> $-\frac{1}{4} < k < 3$ <p>Shape \cup</p>  <p>Minimum in correct quadrant, <u>not</u> touching the x-axis, <u>not</u> on the y-axis, and there must be no other minimum or maximum.</p> <p>(0, 14) or 14 on y-axis</p>	<p>M1</p> <p>A1</p> <p>M1</p> <p>(3)</p> <p>M1 A1</p> <p>M1</p> <p>A1ft</p> <p>(4)</p> <p>B1</p> <p>B1</p> <p>B1</p> <p>(3)</p> <p>[10]</p>
<p>10. (a)</p> <p>(b)</p> <p>(c)</p> <p>(d)</p>	<p>Accept $x = -\frac{3}{4}$</p> <p>$y = 4$ $x = 0$ or 'y-axis'</p> $\frac{dy}{dx} = -3x^{-2}$ <p>At $x = -3$, gradient of curve = $-\frac{1}{3}$</p> <p>Gradient of normal = $-1/m$</p> <p>Normal at P is $(y-3) = 3(x+3)$</p> <p>$(-4, 0)$ and $(0, 12)$.</p> <p>So AB has length $\sqrt{160}$ or AB^2 has length 160</p>	<p>B1</p> <p>(1)</p> <p>B1B1</p> <p>(2)</p> <p>M1</p> <p>A1</p> <p>dM1</p> <p>dM1A1</p> <p>(5)</p> <p>B1</p> <p>M1</p> <p>A1cso</p> <p>(3)</p> <p>[11]</p>

Statistics for C1 Practice Paper Gold Level G3

Qu	Max score	Modal score	Mean %	Mean score for students achieving grade:							
				ALL	A*	A	B	C	D	E	U
1	3		63	1.90	2.96	2.73	2.38	2.16	1.92	1.65	1.35
2	2		51	1.01	1.98	1.72	1.41	1.14	0.94	0.86	0.66
3	6		65	3.88	5.57	5.24	4.57	4.05	3.62	3.17	2.15
4	8		54	4.34	7.81	7.18	6.12	5.13	4.18	3.37	1.96
5	12		61	7.32	11.56	11.11	9.90	8.56	7.24	5.71	3.21
6	7		58	4.04	6.46	6.04	5.01	4.28	3.71	3.17	2.09
7	7		56	3.91		6.64	5.38	4.32	3.42	2.79	1.84
8	9		55	4.91	8.36	7.44	5.70	4.84	4.15	3.56	2.37
9	10		45	4.54		8.65	6.35	4.77	3.29	2.14	0.97
10	11		50	5.46	10.64	9.90	8.07	6.34	4.53	2.84	0.92
	75		55	41.31		66.65	54.89	45.59	37.00	29.26	17.52