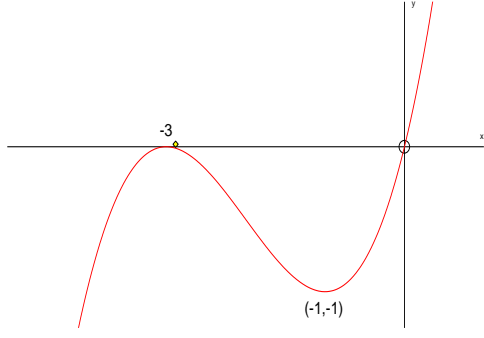
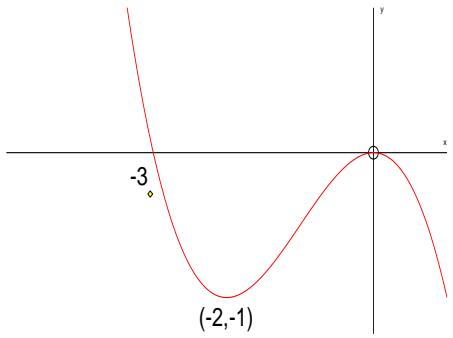
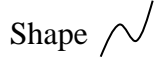



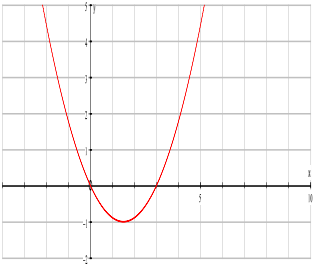
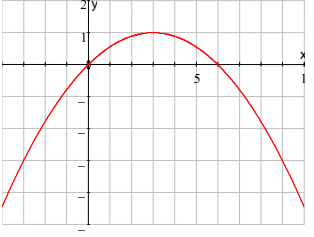
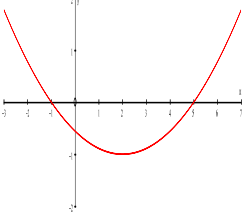
**Edexcel GCE  
Core Mathematics C1  
Silver Level S1  
(Mark Scheme)**

**All exam papers are issued free to students for education purpose only.  
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Question Number	Scheme	Marks
1	$\frac{7+\sqrt{5}}{\sqrt{5}-1} \times \frac{(\sqrt{5}+1)}{(\sqrt{5}+1)}$ $= \frac{\dots}{4}$ $(7+\sqrt{5})(\sqrt{5}+1) = 7\sqrt{5} + 5 + 7 + \sqrt{5}$ $3 + 2\sqrt{5}$	M1 A1 cso M1 A1 cso <b>[4]</b>
2. (a)  (b)	$\frac{dy}{dx} = 10x^4 - 3x^{-4} \quad \text{or} \quad 10x^4 - \frac{3}{x^4}$ $\left(\int =\right) \frac{2x^6}{6} + 7x + \frac{x^{-2}}{-2} = \frac{x^6}{3} + 7x - \frac{x^{-2}}{2} + C$	M1 A1 A1 (3) M1 A1 A1 B1 (4) <b>[7]</b>
3. (a)  (b)	$8^{\frac{1}{3}} = 2 \quad \text{or} \quad 8^5 = 32768$ $\left(8^{\frac{5}{3}} =\right) 32$ $\left(2x^{\frac{1}{2}}\right)^3 = 2^3 x^{\frac{3}{2}}$ $\frac{8x^{\frac{3}{2}}}{4x^2} = 2x^{-\frac{1}{2}} \quad \text{or} \quad \frac{2}{\sqrt{x}}$	M1 A1 cao (2) M1 dM1A1 (3) <b>[5]</b>

Question Number	Scheme	Marks
<p>4. (a)</p> <p>(b)</p>	<p><math>(a_2 =) k(4+2) (= 6k)</math></p> <p><math>a_3 = k(\text{their } a_2 + 2) (= 6k^2 + 2k)</math></p> <p><math>a_1 + a_2 + a_3 = 4 + (6k) + (6k^2 + 2k)</math></p> <p><math>4 + (6k) + (6k^2 + 2k) = 2</math></p> <p>Solves <math>6k^2 + 8k + 2 = 0</math> to obtain <math>k = (6k^2 + 8k + 2 = 2(3k + 1)(k + 1))</math></p> <p><math>k = -1/3</math></p> <p><math>k = -1</math></p>	<p>B1</p> <p>(1)</p> <p>M1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p> <p>B1</p> <p>(6)</p> <p>[7]</p>
<p>5. (a)</p> <p>(b)</p>	<div style="display: flex; flex-direction: column;"> <div style="margin-bottom: 20px;">  </div> <div>  </div> </div>	<p>Shape , touching the <math>x</math>-axis at its maximum.</p> <p>Through <math>(0,0)</math> &amp; <math>-3</math> marked on <math>x</math>-axis, or <math>(-3,0)</math> seen.</p> <p>Allow <math>(0,-3)</math> if marked on the <math>x</math>-axis.</p> <p>Marked in the correct place, but <math>3</math>, is A0.</p> <p>Min at <math>(-1,-1)</math></p> <p>(3)</p> <p>Correct shape  (top left - bottom right)</p> <p>Through <math>-3</math> and max at <math>(0, 0)</math>.</p> <p>Min at <math>(-2,-1)</math></p> <p>(3)</p> <p>[6]</p>

Question Number	Scheme	Marks
<p><b>6. (a)</b></p>	$S_{10} = \frac{10}{2}[2a + 9d] \text{ or}$ $S_{10} = a + a + d + a + 2d + a + 3d + a + 4d + a + 5d + a + 6d + a + 7d + a + 8d + a + 9d$ $162 = 10a + 45d$	<p>M1</p> <p>A1 cso (2)</p>
<p><b>(b)</b></p>	$(u_n = a + (n-1)d \Rightarrow) 17 = a + 5d$	<p>B1 (1)</p>
<p><b>(c)</b></p>	<p>10 × (b) gives <math>10a + 50d = 170</math></p> <p>(a) is <math>10a + 45d = 162</math></p>	<p>M1</p>
	<p>Subtract <math>5d = 8</math> so <math>d = 1.6</math> oe</p>	<p>A1</p>
	<p>Solving for <math>a</math> <math>a = 17 - 5d</math></p> <p>so <math>a = 9</math></p>	<p>M1 A1 (4)</p>
		<p><b>[7]</b></p>
<p><b>7. (a)</b></p>	<p>Lewis; arithmetic series, <math>a = 140, d = 20</math>.</p>	
	$T_{20} = 140 + (20 - 1)(20); = 520$	<p>M1; A1 (2)</p>
<p><b>(b)</b></p>	<p>Uses <math>\frac{1}{2}n(2a + (n-1)d)</math></p>	<p>M1</p>
	$\frac{20}{2}(2 \times 140 + (20 - 1)(20))$	<p>A1</p>
	$6600$	<p>A1 (3)</p>
<p><b>(c)</b></p>	<p>Sian; arithmetic series,</p>	
	$a = 300, l = 700, S_n = 8500$	
	<p>Attempt to use <math>8500 = \frac{n}{2}(a + l)</math></p>	<p>M1</p>
	$8500 = \frac{n}{2}(300 + 700)$	<p>A1</p>
	$\Rightarrow n = 17$	<p>A1 (3)</p>
		<p><b>[8]</b></p>

Question Number	Scheme	Marks
<p>8. (a)</p>  <p>(b)</p>  <p>(c)</p> 	<p>Shape <math>\cup</math> through <math>(0, 0)</math></p> <p><math>(3, 0)</math></p> <p><math>(1.5, -1)</math></p> <p>Shape <math>\cap</math></p> <p><math>(0, 0)</math> and <math>(6, 0)</math></p> <p><math>(3, 1)</math></p> <p>Shape <math>\cup</math>, <u>not</u> through <math>(0, 0)</math></p> <p>Minimum in 4<sup>th</sup> quadrant</p> <p><math>(-p, 0)</math> and <math>(6 - p, 0)</math></p> <p><math>(3 - p, -1)</math></p>	<p>B1</p> <p>B1</p> <p>B1</p> <p>(3)</p> <p>B1</p> <p>B1</p> <p>B1</p> <p>(3)</p> <p>M1</p> <p>A1</p> <p>B1</p> <p>B1</p> <p>(4)</p> <p><b>[10]</b></p>
<p>9. (a)</p> <p>(b)</p> <p>(c)</p>	<p><math>a + 29d = 40.75</math> or <math>a = 40.75 - 29d</math> or <math>29d = 40.75 - a</math></p> <p><math>(S_{30}) = \frac{30}{2}(a + l)</math> or <math>\frac{30}{2}(a + 40.75)</math> or <math>\frac{30}{2}(2a + (30 - 1)d)</math></p> <p style="text-align: right;">or <math>15(2a + 29d)</math></p> <p>So <math>1005 = 15[a + 40.75]</math> *</p> <p><math>67 = a + 40.75</math> so <u><math>a = (\pounds) 26.25</math> or <math>2625p</math></u></p> <p><math>29d = 40.75 - 26.25</math></p> <p style="padding-left: 2em;"><math>= 14.5</math> so <u><math>d = (\pounds)0.50</math> or <math>0.5</math> or <math>50p</math></u></p>	<p>M1 A1</p> <p>(2)</p> <p>M1</p> <p>A1 cso</p> <p>(2)</p> <p>M1 A1</p> <p>M1</p> <p>A1</p> <p>(4)</p> <p><b>[8]</b></p>

Question Number	Scheme	Marks
<p><b>10.</b> (a)</p> <p>(b)</p> <p>(c)</p>	<p><math>x = 1: y = -5 + 4 = -1, \quad x = 2: y = -16 + 2 = -14</math></p> <p><math>PQ = \sqrt{(2-1)^2 + (-14 - (-1))^2} = \sqrt{170}</math> (*)</p> <p><math>y = x^3 - 6x^2 + 4x^{-1}</math></p> <p><math>\frac{dy}{dx} = 3x^2 - 12x - 4x^{-2}</math></p> <p><math>x = 1: \frac{dy}{dx} = 3 - 12 - 4 = -13</math></p> <p><math>x = 2: \frac{dy}{dx} = 12 - 24 - 1 = -13 \quad \therefore \text{Parallel}</math></p> <p>Finding gradient of normal <math>\left(m = \frac{1}{13}\right)</math></p> <p><math>y - -1 = \frac{1}{13}(x - 1)</math></p> <p><u><math>x - 13y - 14 = 0</math></u> o.e.</p>	<p>B1 B1</p> <p>M1 A1cso (4)</p> <p>M1</p> <p>M1 A1</p> <p>M1</p> <p>A1 (5)</p> <p>M1</p> <p>M1 A1ft</p> <p>A1cso (4) <b>[13]</b></p>

## Statistics for C1 Practice Paper Silver Level S1

Qu	Max score	Modal score	Mean %	Mean score for students achieving grade:							
				ALL	A*	A	B	C	D	E	U
1	4		89	3.54	3.95	3.95	3.84	3.76	3.66	3.51	2.77
2	7		86	5.99	6.90	6.76	6.56	6.39	6.12	5.79	4.42
3	5		80	3.98	4.9	4.74	4.48	4.24	3.95	3.69	2.85
4	7		81	5.67	6.93	6.89	6.64	6.38	5.97	5.41	3.30
5	6		80	4.79		5.69	5.25	4.90	4.44	3.98	2.71
6	7		74	5.16	6.93	6.85	6.68	6.39	5.67	5.15	3.46
7	8		77	6.17	7.92	7.55	6.78	6.42	6.06	5.43	4.47
8	10		68	6.82	9.69	8.94	8.05	7.21	6.52	5.75	4.06
9	8		66	5.28	7.63	7.25	6.44	5.70	4.93	4.15	2.42
10	13		64	8.32		12.48	11.38	9.65	7.32	5.09	2.00
	<b>75</b>		<b>74</b>	<b>55.72</b>		<b>71.10</b>	<b>66.10</b>	<b>61.04</b>	<b>54.64</b>	<b>47.95</b>	<b>32.46</b>