

**Edexcel GCE  
Core Mathematics C2  
Bronze Level B2  
(Mark Scheme)**

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Question Number	Scheme	Marks
1. (a)(i)	$f(3) = 3^3 - 2 \times 3^2 - 4 \times 3 + 8 = 5$	M1 A1
(ii)	$f(-2) = (-8 - 8 + 8 + 8) = 0$	B1
(b)	$[(x+2)](x^2 - 4x + 4) (= 0)$	M1 A1 (3)
	$(x+2)(x-2)^2 (= 0)$	M1
	Solutions: $x = 2$ or $-2$ or $(-2, 2, 2)$	A1 (4)
		[7]
2.	$(2-5x)^6$ $(2^6 =) 64$ $+6 \times (2)^5 (-5x) + \frac{6 \times 5}{2} (2)^4 (-5x)^2$ $-960x$ $(+)6000x^2$	B1 M1 A1 A1 (4)
3. (a)	$f(2) = 24 - 20 - 32 + 12 = -16$	M1 A1 (2)
(b)	$(x+2)(3x^2 - 11x + 6)$ $(x+2)(3x-2)(x-3)$	M1 A1 M1 A1 (4)
		[6]
4. (a)	$ar = 750$ and $ar^4 = -6$ $r^3 = \frac{-6}{750}$ $r = -\frac{1}{5}$	B1 M1 M1 (3)
(b)	$a(-0.2) = 750$ $a \left\{ \begin{array}{l} 750 \\ -0.2 \end{array} \right\} = -3750$	M1 A1ft (2)
(c)	Applies $\frac{a}{1-r}$ correctly using both their $a$ and their $ r  < 1$ . So, $S_\infty = -3125$	M1 A1 (2)
		[7]

Question Number	Scheme	Marks
<p>5. (a)</p> <p>(b)</p>	$f(-2) = 2.(-2)^3 - 7.(-2)^2 - 10.(-2) + 24$ $= 0 \text{ so } (x+2) \text{ is a factor}$ $f(x) = (x+2)(2x^2 - 11x + 12)$ $f(x) = (x+2)(2x-3)(x-4)$	<p>M1</p> <p>A1</p> <p>(2)</p> <p>M1 A1</p> <p>dM1 A1</p> <p>(4)</p> <p><b>[6]</b></p>
<p>6. (a)</p> <p>(b)</p>	<p>Puts <math>10 - x = 10x - x^2 - 8</math> and rearranges to give three term quadratic</p> <p>Solves their "<math>x^2 - 11x + 18 = 0</math>" to give <math>x =</math></p> <p>Obtains <math>x = 2, x = 9</math></p> <p>Substitutes their <math>x</math> into a given equation to give <math>y =</math></p> <p><math>y = 8, y = 1</math></p> $\int (10x - x^2 - 8) dx = \frac{10x^2}{2} - \frac{x^3}{3} - 8x \{+ c\}$ $\left[ \frac{10x^2}{2} - \frac{x^3}{3} - 8x \right]_2^9 = (\dots) - (\dots)$ $= 90 - \frac{4}{3} = 88\frac{2}{3} \text{ or } \frac{266}{3}$ <p>Area of trapezium = <math>\frac{1}{2}(8+1)(9-2) = 31.5</math></p> <p>So area of <math>R</math> is <math>88\frac{2}{3} - 31.5 = 57\frac{1}{6}</math> or <math>\frac{343}{6}</math></p>	<p>M1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p> <p>(5)</p> <p>M1 A1</p> <p>A1</p> <p>dM1</p> <p>B1</p> <p>M1 A1</p> <p>cao</p> <p>(7)</p> <p><b>[12]</b></p>
<p>7. (a)</p> <p>(b)</p> <p>(c)</p>	<p>At <math>\{x = 2.5,\}</math> <math>y = 0.30</math></p> <p>At <math>\{x = 2.75,\}</math> <math>y = 0.24</math></p> $\frac{1}{2} \times 0.25; \times \{0.5 + 0.2 + 2(0.38 + \text{their } 0.30 + \text{their } 0.24)\}$ $\left\{ = \frac{1}{8}(2.54) \right\} = \text{awrt } 0.32$ <p>Area of triangle = <math>\frac{1}{2} \times 1 \times 0.2 = 0.1</math></p> <p>Area (<math>S</math>) = "0.3175" - 0.1</p> $= 0.2175$	<p>B1</p> <p>B1</p> <p>(2)</p> <p>B1 M1</p> <p>A1</p> <p>A1</p> <p>(4)</p> <p>B1</p> <p>M1</p> <p>A1ft</p> <p>(3)</p> <p><b>[9]</b></p>

Question Number	Scheme	Marks												
8. (a)	<table border="1" data-bbox="395 253 1091 331"> <tr> <td>x</td> <td>0</td> <td>0.25</td> <td>0.5</td> <td>0.75</td> <td>1</td> </tr> <tr> <td>y</td> <td>1</td> <td>1.251</td> <td><b>1.494</b></td> <td><b>1.741</b></td> <td>2</td> </tr> </table>	x	0	0.25	0.5	0.75	1	y	1	1.251	<b>1.494</b>	<b>1.741</b>	2	B1 B1 (2)
x	0	0.25	0.5	0.75	1									
y	1	1.251	<b>1.494</b>	<b>1.741</b>	2									
(b)	$\frac{1}{2} \times 0.25, \{(1+2) + 2(1.251+1.494+1.741)\}$ <p style="text-align: right;">o.e.</p> $= 1.4965$	B1 M1 A1ft A1 (4) <b>[6]</b>												
9. (a)	$4(1 - \cos^2 x) + 9 \cos x - 6 = 0 \qquad 4 \cos^2 x - 9 \cos x + 2 = 0 (*)$	M1 A1 (2)												
(b)	$(4 \cos x - 1)(\cos x - 2) = 0 \qquad \cos x = \dots, \quad \frac{1}{4}$ $x = 75.5 \qquad (\alpha)$ $360 - \alpha, \quad 360 + \alpha \quad \text{or} \quad 720 - \alpha$ $284.5, \quad 435.5, \quad 644.5$	M1 A1  B1 M1, M1 A1(6) <b>[8]</b>												
10. (a)	$C\left(\frac{-2+8}{2}, \frac{11+1}{2}\right) = C(3, 6)$	B1* (1)												
(b)	$(8-3)^2 + (1-6)^2 \quad \text{or} \quad \sqrt{(8-3)^2 + (1-6)^2} \quad \text{or}$ $(-2-3)^2 + (11-6)^2 \quad \text{or} \quad \sqrt{(-2-3)^2 + (11-6)^2}$ $(x-3)^2 + (y-6)^2 = 50 \quad \left(\text{or } (\sqrt{50})^2 \text{ or } (5\sqrt{2})^2\right)$	M1 A1 M1 A1 (4)												
(c)	<p>{For (10, 7),} <math>(10-3)^2 + (7-6)^2 = 50,</math> {so the point lies on C.}</p>	(1)												
(d)	<p>{Gradient of radius} = <math>\frac{7-6}{10-3}</math> or <math>\frac{1}{7}</math></p> <p>Gradient of tangent = <math>\frac{-7}{1}</math></p> $y - 7 = -7(x - 10)$ $y = -7x + 77$	B1 M1 M1 A1 cao (4) <b>[10]</b>												

## Statistics for C2 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	7		86	6.05		6.80	6.53	6.08	5.50	5.01	3.74
1	4		85	3.39	3.93	3.82	3.59	3.40	3.20	2.75	1.93
2	6		82	4.93		5.88	5.67	5.37	5.00	4.33	2.51
3	7		80	5.57	6.92	6.75	6.27	5.40	4.28	2.91	1.89
4	6		81	4.86	5.84	5.68	5.44	5.18	4.86	4.30	2.72
5	12		77	9.18	11.87	11.50	10.79	10.03	9.07	7.50	3.47
6	9		80	7.16	8.76	8.61	7.77	6.75	5.61	4.64	2.98
7	6		83	5.00	5.94	5.83	5.61	5.33	4.93	4.38	3.09
8	8		74	5.89		7.60	6.82	5.68	3.94	2.63	1.05
9	10		71	7.11	9.74	9.25	7.95	6.27	4.93	3.46	1.70
	<b>75</b>		<b>79</b>	<b>59.14</b>		<b>71.72</b>	<b>66.44</b>	<b>59.49</b>	<b>51.32</b>	<b>41.91</b>	<b>25.08</b>