2010 Mathematics SG – Credit Level – Paper 1

Draft Marking Instructions

Award marks in whole numbers only

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
1	**Ans: £2·79** • knowing correct order of operations • carrying out both calculations	• 4·60 • 2·79 **2KU**
NOTES: (i) for 2·79, with or without working — award 2/2 (ii) for 3·876, 3·88 or 3·87, with or without working — award 1/2		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
2	**Ans:** $\frac{4}{11}$ • valid strategy • correct calculation	• $\frac{2}{5}\times\frac{10}{11}$ • $\frac{4}{11}$ or equivalent **2KU**

NOTES:

(i) alternative valid strategies for first mark:

- $\frac{4}{10}\div\frac{11}{10}$
- $\frac{0\cdot4}{1\cdot1}$

(ii) for $\frac{2}{5}\times\frac{11}{10}=\frac{22}{50}$

or $\frac{5}{2}\times\frac{11}{10}=\frac{55}{20}$

or $\frac{5}{2}\times\frac{10}{11}=\frac{50}{22}$ award 1/2

(iii) for $\frac{4}{11}=2\frac{3}{4}$ or $2\frac{3}{11}$ award 1/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
3	**Ans:** $\boldsymbol{s = \frac{2t-4}{7}}$ • beginning to rearrange • continuing to rearrange • completed rearrangement	 • $7s + 4 = 2t$ • $7s = 2t - 4$ • $s = \frac{2t-4}{7}$ **3KU**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
4 (a)	**Ans: proof** • forming equation • rearranging	 • $x^2 - 4x = 2x + 7$ • $x^2 - 6x - 7 = 0$ **2RE**
NOTES:		
(b)	**Ans: $x = -1$, $x = 7$** • factorising • solution	 • $(x+1)(x-7)$ • $-1, 7$ **2RE**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
5 (a)	**Ans:** $\frac{5}{9}$ • probability	• $\frac{5}{9}$ or equivalent **1KU**
NOTES:		
(b)	**Ans: 15** • solution	• 15 **1RE**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
6	**Ans: 750 grams** • valid strategy • processing • solution	 • $120\% = 900$ • $20\% = 150$ or similar • 750 **3KU**

NOTES:

(i) for 750 with or without working — award 3/3

(ii) for 720 $(80\% \text{ of } 900)$ with or without working — award 0/3

(iii) for 1080 $(120\% \text{ of } 900)$ with or without working — award 0/3

(iv) caution: some candidates state 120% = 900 but follow this as note (ii) or (iii); in these cases, the 1st mark is still available

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
7 (a)	**Ans:** $\mathbf{2m + c = 7}$ • equation	• $2m + c = 7$ **1KU**
(b)	**Ans:** $\mathbf{4m + c = 17}$ • equation	• $4m + c = 17$ **1KU**
NOTES: (i) marks can only be awarded for equations in terms of m and c		
(c)	**Ans:** $\mathbf{m = 5, c = -3}$ • method • value of m • value of c	• $2m = 10$ or similar • 5 • -3 **3RE**
NOTES: (i) accept alternative methods eg $m = \frac{17 - 7}{4 - 2}$ or graphical solution		
(d)	**Ans:** **5** • gradient	• 5 **1RE**
NOTES: (i) the final mark is awarded for either the correct gradient (5) or the value of m from part (c)		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
8 (a)	**Ans: 6** • simplifying	• 6 **1KU**
NOTES:		
(b)	**Ans: $4\sqrt{2}$** • simplifying	• $4\sqrt{2}$ **1KU**
NOTES:		
(c)	**Ans: $\frac{3\sqrt{2}}{4}$** • rationalise denominator • simplification	• $\frac{6}{4\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}}$ • $\frac{3\sqrt{2}}{4}$ **2KU**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
9 (a)	**Ans:** **B$(-6, 0)$** • starting to solve • coordinates of B	• $\frac{1}{3}x + 2 = 0$ • $(-6, 0)$ **2KU**
NOTES: (i) for $(-6, 0)$ with or without working — award 2/2 (ii) for $(0, -6)$ with or without working — award 1/2 (iii) answer must be in co-ordinate form		
(b)	**Ans:** $x < -6$ • solution	• $x < -6$ **1RE**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
10 (a)	**Ans:** $\dfrac{\mathbf{5^2 \times 6^2}}{\mathbf{4}}$ • solution	• $\dfrac{5^2 \times 6^2}{4}$ **1RE**
NOTES:		
(b)	**Ans:** $\dfrac{\boldsymbol{n^2(n+1)^2}}{\mathbf{4}}$ • starting expression • solution	• n and $n+1$ • $\dfrac{n^2(n+1)^2}{4}$ **2RE**
NOTES:		
(c)	**Ans: 2025** • starting expression • solution	• $\dfrac{9^2(9+1)^2}{4}$ • 2025 **2RE**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
11	**Ans:** $x = \frac{6}{5}$ • strategy • forming a valid equation • starting to solve • solution	• $\frac{1}{2} \times 1 \times \frac{x}{2}$ or $\frac{1}{2} \times 3 \times (x-1)$ • $\frac{1}{2} \times 1 \times \frac{x}{2} = \frac{1}{2} \times 3 \times (x-1)$ • $x = 6(x-1)$ • $x = \frac{6}{5}$ **4RE**

NOTES:

(i) areas need not be explicitly stated

(ii) for $1 \times \frac{x}{2} = 3(x-1)$ award the first two marks

(iii) for $1 \times \frac{x}{2} = 3(x-1)$ arising from Area of Triangle $= b \times h$, the first two marks cannot be awarded

KU 19 marks
RE 19 marks

[END OF PAPER 1 MARKING INSTRUCTIONS]