2009 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: 27.11** • division • subtraction	• 28.2 • 27.11 **2KU**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
2	**Ans:** $\mathbf{2\frac{5}{6}}$ • common denominator • fraction	• $4\frac{2}{6}-1\frac{3}{6}$ • $\frac{17}{6}$ **2KU**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
3 (a)	**Ans: 19** • substitution • evaluation	• $(-4)^2 + 3$ • 19 **2KU**
NOTES: (i) for 19, with or without working — award 2/2		
(b)	**Ans: $t = \pm 7$** • substitution • evaluation	• $t^2 + 3 = 52$ • $t = \pm 7$ **2RE**
NOTES: (i) for ± 7, with or without working — award 2/2 (ii) for 7 or -7, with or without working — award 1/2		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
4 (a)	**Ans:** $(x-2y)(x+2y)$ • factorising	• $(x-2y)(x+2y)$ **1KU**
NOTES:		
(b)	**Ans:** $2x^2+7x-4$ • expansion	• $2x^2+7x-4$ **1KU**
NOTES:		
(c)	**Ans:** $3x^{\frac{3}{2}}+x^{-\frac{3}{2}}$ • a correct term • a second correct term with no further 'simplification'	• $3x^{\frac{3}{2}}$ or $x^{-\frac{3}{2}}$ • $3x^{\frac{3}{2}}$ or $x^{-\frac{3}{2}}$ **2KU**
NOTES: (i) accept indices in decimal form (ii) a further 'simplification' could be $3x^{\frac{3}{2}}+x^{-\frac{3}{2}}=3x^0$		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
5	**Ans:** $\mathbf{4\sqrt{3}}$ • method • processing • simplification	• $BC^2 = 8^2 - 4^2$ • $\sqrt{48}$ • $4\sqrt{3}$ **3KU**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
6	**Ans: P(female) plus justification** • probability (female) • probability (5) • communication	• $\frac{4}{18}$ • $\frac{1}{6}$ • female (with justification) **3RE**

NOTES:

(i) for the 3rd mark, justification must show

(a) both probabilities with same numerator or denominator

and

(b) a consistent decision

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
7	**Ans: £200** • valid strategy • processing • solution	• 130% = 260 • $100\% = \frac{260}{1.3}$ • 200 **3KU**

NOTES:

(i) for £200, with or without working — award 3/3

(ii) for £371.43 (70% = £260), with working — award 2/3

(iii) for £338 (130% of £260), with or without working — award 0/3

(iv) for £182 (70% of £260), with or without working — award 0/3

(v) caution: some candidates state 130% = £260 and follow this as note (iii) or (iv); in these cases, the 1st mark is still available

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
8 (a)	**Ans:** $6x + 2y = 42$ • starting to form equation • equation	• $x + 5x + 2y$ • $x + 5x + 2y = 42$ **2KU**
NOTES:		
(b)	**Ans:** $5x - 2y = 2$ • starting to form equation • equation	• an equation containing only the terms $5x$, $2y$ and 2 • $5x - 2y = 2$ **2RE**
NOTES:		
(c)	**Ans:** $x = 4, y = 9$ • method • processing • processing	• $11x = 44$ or equivalent • $x = 4$ • $y = 9$ **3RE**
NOTES: (i) for 4 and 9 verified in **both** equations award 1/3		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
9	**Ans:** $\boldsymbol{d = \sqrt{\frac{20f}{k}}}$ • beginning to rearrange • continuing rearrangement • completed rearrangement	 • $kd^2 = 20f$ • $d^2 = \frac{20f}{k}$ • $d = \sqrt{\frac{20f}{k}}$ **3KU**

NOTES:

(i) for $d = \sqrt{\frac{20f}{k}}$, with or without working — award 3/3

(ii) for $d = \frac{\sqrt{20f}}{k}$, with or without working — award 2/3

(iii) the 3rd mark is for the square root of the candidate's expression for d^2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
10 (a)	**Ans: 14 seconds** • strategy • solution	• $-2t(t-14)=0$ • 14 **2RE**
NOTES: (i) for an answer of 14 with **no** working — award 2/2 (ii) caution: an answer of 14 may be the result of incorrect working: ensure that working is valid		
(b)	**Ans: 98 metres** • method • solution	• $(x=)7$ • 98 **2RE**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
11	**Ans: 0.3** • correct use of sine rule • rearranging • simplification	• $\frac{10}{\sin 30^\circ} = \frac{6}{\sin A}$ • $\sin A = \frac{6 \sin 30^\circ}{10}$ • 0.3 **3RE**
NOTES: (i) candidates who assume that $\sin A = 0.3$ may be awarded a maximum of $\frac{1}{3}$ (1^{st} mark)		

KU 21 marks
RE 17 marks

[END OF PAPER 1 MARKING INSTRUCTIONS]