2012 Mathematics

Standard Grade Foundation

Finalised Marking Instructions

Special Instructions

1 The main principle in marking scripts is to give credit for the skills which have been demonstrated. Failure to have the correct method may not preclude a pupil gaining credit for the calculations involved or for the communication of the answer.

Care should be taken to ensure that the mark for any question or part question is entered in the correct column, as indicated by the horizontal line.

Where a candidate has scored zero marks for any question attempted, "0" should be shown against the answer in the appropriate column.

It is of great importance that the utmost care should be exercised in adding up the marks. Where appropriate, all summations for totals and grand totals must be carefully checked.

2 The answer to one part, correct **or incorrect** must be accepted as a basis for subsequent dependent parts of a question. Full marks in the dependent part are possible if it is of equivalent difficulty.

3 Do not penalise insignificant errors. An insignificant error is one which is significantly below the level of attainment being assessed.

eg An error in the calculation of 16 + 15 would not be penalised at Credit Level.

4 Working after a correct answer should **only** be taken into account if it provides **firm** evidence that the requirements of the question have not been met.

5 In certain cases an error will ease subsequent working. **Full** credit cannot be given for this subsequent work but **partial** credit may be given.

6 Accept answers arrived at by inspection or mentally, where it is possible for the answer to have been so obtained.

7 Do not penalise omission or misuse of units unless marks have been specifically allocated to units.

8 A wrong answer without working receives no credit unless specifically mentioned in the marking scheme.

The rubric on the outside of the Papers emphasises that working must be shown. In general markers will only be able to give credit to partial answers if working is shown. However there may be a few questions where partially correct answers unsupported by working can still be given some credit. **Any such instances will be stated in the marking scheme.**

9 Acceptable alternative methods of solution can only be given the marks specified, ie a more sophisticated method cannot be given more marks.

Note that for some questions a method will be specified.

10 In general do not penalise the same error twice in the one question.

11 Accept legitimate variations in numerical/algebraic questions.

12 Do not penalise bad form eg $\sin x° = 0{\cdot}5 = 30°$.

13 A transcription error, where a number has been erroneously transcribed from the examination question, is not normally penalised except where the question has been simplified as a result.

14 When multiple solutions are presented by the candidate and it is not clear which is intended to be the final one, mark all attempts and award the lowest mark.

2012 Mathematics SG − Foundation Level − Paper 1
Marking Instructions

Award marks in whole numbers only

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
1 (a)	**Ans: 58** •[1] subtract 37 from 95	•[1] 58 **1K**
(b)	**Ans: 4·23** •[1] divide 29·61 by 7	•[1] 4·23 **1K**
(c)	**Ans: £30** •[1] know how to find 25% of £120 •[2] carry out calculation correctly	•[1] 120 ÷ 4 or equivalent •[2] £30 **2K**

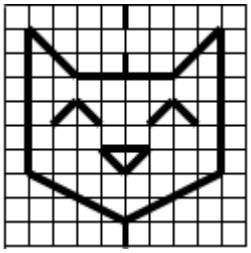
NOTES:

1.

Final Answers		**with working**	**without working**
£30		2/2	2/2
£60	(50%)	1/2	0/2
£40	($33\frac{1}{3}$ %)	1/2	0/2
£24	(20%)	1/2	0/2
£12	(10%)	1/2	0/2

2	**Ans: £1130** •[1] know how to find total fees •[2] find total fees	•[1] 130 + 450 + 550 •[2] 1130 **2K**

NOTES:

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
3	**Ans:**  •[1] reflect lines •[2] reflect lines •[3] reflect lines •[4] reflect shape	•[1] reflect 2 lines correctly •[2] reflect further 2 lines correctly •[3] reflect further 2 lines correctly •[4] complete reflection **4R**
NOTES:		
4	**Ans: 250 millilitres** •[1] know how to find $\frac{1}{5}$ of 1250 •[2] find $\frac{1}{5}$ of 1250	•[1] 1250 ÷ 5 •[2] 250 **2K**
NOTES: 1. Ignore any working or answer subsequent to the correct answer.		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
5	**Ans: 18 centimetres** •[1] know how to find height of head •[2] know how to find height of snowman •[3] carry out relevant calculations correctly (at least 2 calculations)	•[1] 2 × 3 •[2] 2 × 3 + 12 •[3] 18 **3R**

NOTES:

1. SOME COMMON ANSWERS

27 (2 × 12 + 3)	with or without working	award 2/3
9 (12 ÷ 2 + 3)	with working	award 2/3
6 (2 × 3 or 12 ÷ 2)	with or without working	award 1/3
15 (12 + 3)	with or without working	award 0/3
9 (12 – 3)	with or without working	award 0/3
36 (12 × 3)	with or without working	award 0/3

6 (a)	**Ans: 15 45** •[1] write as a 24-hour clock time	•[1] 15 45 **1K**

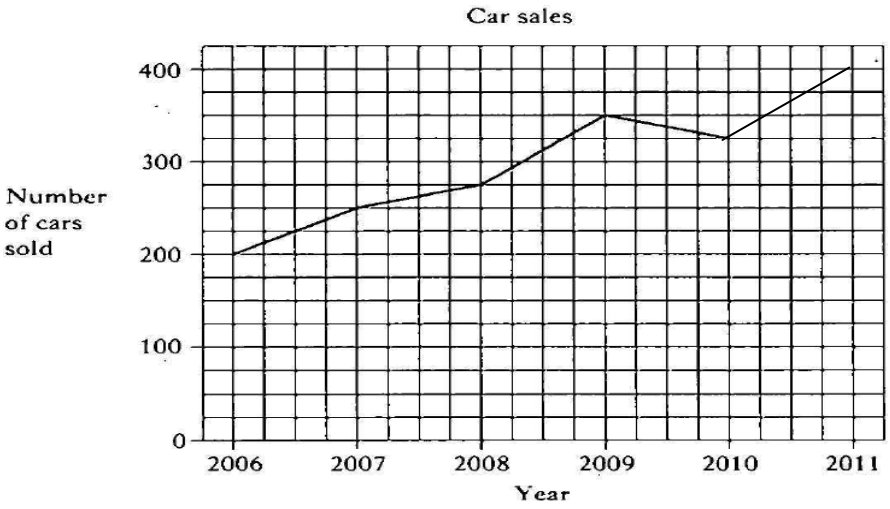
NOTES:

1. Do not accept 15 45 pm

(b)	**Ans: 17 10 or equivalent** •[1] know to change 85 minutes to hours and minutes •[2] know to add 85 minutes to 15 45 •[3] carry out calculations correctly	•[1] 85 ÷ 60 •[2] 15 45 + 1h 25min •[3] 17 10 (or equivalent) **3K**

NOTES:

1. For an answer of 16 30 (1545 + 85) or 4.30 with or without working — award 1/3
2. Accept 17 10 pm, 5.10.

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
7 (a)	**Ans: 250** •[1] state number of cars sold in 2007	•[1] 250 **1K**
(b)	**Ans:**  •[1] know how to find 2011 total •[2] multiply by 2 correctly •[3] complete line graph correctly	•[1] 2 × 200 •[2] 400 •[3] evidence **3R**
(c)	**Ans: the trend is increasing** •[1] describe trend correctly	•[1] increasing **1K**

NOTES:

1. SOME ACCEPTABLE ANSWERS
   It goes up every year.
   It rises every year except 2009-10 when it falls.

2. Accept "It goes up" even when accompanied by incorrect numerical quantities.

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
8	**Ans: 38 × 5 = 190** $\bullet^1\bullet^2$ interpret the sign language $\bullet^3$ write down calculation $\bullet^4$ multiply correctly	$\bullet^1\bullet^2$ 3, 8, 5 (award 1 mark for any 1 correct) $\bullet^3$ 38 × 5 $\bullet^4$ 190 **4 R**
NOTES: 1. For an answer of 190 without working award 3/4 ✓✓×✓		

KU 14 marks
RE 14 marks

[END OF PAPER 1 MARKING INSTRUCTIONS]

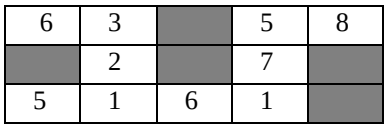
2012 Mathematics SG − Foundation Level – Paper 2

Marking Instructions

Award marks in whole numbers only

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
1	**Ans: 42 minutes** •[1] know how to find number of minutes per page •[2] know how to find number of minutes for 7 pages •[3] carry out calculations correctly	•[1] 24 ÷ 4 •[2] 24 ÷ 4 × 7 •[3] 42 **3K**
NOTES: 1. SOME COMMON ANSWERS 13·7(14…) (24 ÷ 7 × 4) with or without working award 2/3 6 (24 ÷ 4) with or without working award 1/3 168 (24 × 7) with or without working award 1/3		
2	**Ans: 240º** •[1] know how to find shaded angle •[2] subtract correctly	•[1] 360 – 120 •[2] 240 **2K**
NOTES: 1. For an answer of 240° arising from 2 × 120° award 2/2		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
3 (a)	**Ans: Tuesday** •[1] state correct day	•[1] Tuesday **1K**
(b)	**Ans: Sunday** •[1] know how to extend calendar •[2] find correct day	•[1] evidence •[2] Sunday **2R**
NOTES:		
4	**Ans: £144** •[1] know how to find amount raised •[2] find amount raised	•[1] 16 × 9 •[2] 144 **2K**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
5 (a)	**Ans: six thousand seven hundred and thirty five** •[1] write 6735 in words	•[1] six thousand seven hundred and thirty five **1K**
NOTES: 1. MINIMUM ACCEPTABLE ANSWER 6 thousand 7 hundred and thirty 5		
(b)	**Ans:**  •[1] correctly place two numbers •[2] correctly place a further two numbers •[3] correctly complete grid	•[1] evidence •[2] evidence •[3] evidence **3R**
NOTES: 1. Where more than one grid is used, award the best mark.		
6	**Ans: 29 000** •[1] know how to find number of children •[2] find 5% of 580 000	•[1] $\frac{5}{100} \times 580\,000$ or equivalent (must be evidence of ×5 and ÷100) •[2] 29 000 **2K**
NOTES: 1. For an answer of 290 000 or 2900 or 290 or 29 with or without working award 1/2		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
7 (a)	**Ans:** Decoration size: 1 | 2 | 3 | 4 | 5 | 6 | [ ] | 11 Number of balloons: 4 | **7** | **10** | **13** | **16** | **19** | [ ] | **34**	
	•[1] interpret diagram and continue pattern •[2] continue pattern •[3] know how to extend pattern •[4] extend pattern	•[1] 10 •[2] 13, 16, 19 •[3]•[4] 34 (award 1 for evidence of extended pattern but with one error) **4R**

NOTES:

1. FOLLOW THROUGH ERRORS
   3/4 can be awarded for a "correct" continuation with one error

   eg 4, 7, 9, 12, 15, 18 ……. 33
   4, 7, 11, 14, 17, 20 ……. 35
   4, 7, 9, 11, 13, 15 ……. 25
   4, 7, 11, 15, 19, 23 ……. 43
   4, 7, 11, 16, 22, 29 ……. 79
   4, 7, 12, 19, 28, 39 ……. 124

(b)	**Ans: × 3 + 1** •[1]•[2] generalise pattern	•[1]•[2] × 3 + 1 **2R**

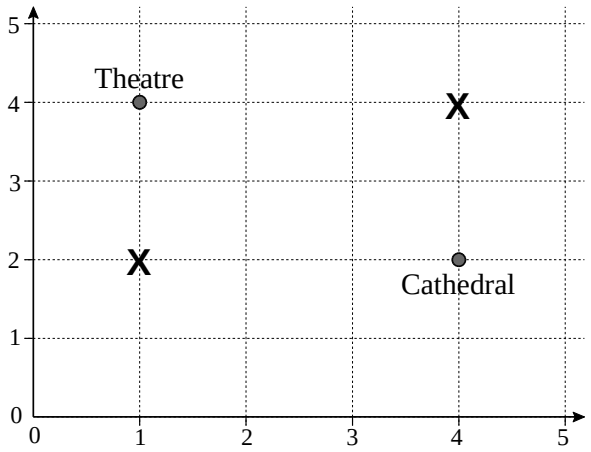
NOTES:

1. Accept "bad form" eg decoration size + decoration size + decoration size + 1.

2. Do not accept "it goes up in threes" or "add on 3 for each decoration".

3. Where an error has been made in part (a), 1/2 may be awarded for a rule which is true for **at least three** of the entries made by the candidate
   eg for 4, 7, 11, 15, 19, 23 ……. 43 in part (a) followed by × 4 – 1 in part (b) award 1/2 in part (b).

4. A mark of 1/2 may **only** be awarded for the situation described in Note 3.

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
8	**Ans: Cuboid** •[1] name shape	•[1] cuboid **1K**
NOTES:		
9 (a)	**Ans: (4, 2)** •[1] state position of cathedral	•[1] (4, 2) **1K**
(b)	**Ans:**  •[1] mark one corner of rectangle •[2] mark other corner of rectangle	•[1] (1, 2) indicated •[2] (4, 4) indicated **2R**
NOTES: 1. Where (1, 2) and (4, 4) are stated, but not shown on the grid		award 1/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
10	**Ans: £87** $\bullet^1\bullet^2$ know how to find mean $\bullet^3$ add correctly $\bullet^4$ divide correctly	$\bullet^1\bullet^2$ (70 + 77 + 85 + 93 + 110) ÷ 5 $\bullet^3$ 435 $\bullet^4$ 87 **4K**

NOTES:

1.	347	70 + 77 + 85 + 93 + 110 ÷ 5 (incorrect use of calculator)	with or without working	award 3/4
2.	435		with or without working	award 1/4

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
11 (a)	**Ans: 2010** •[1] state year	•[1] 2010 **1R**
(b)	**Ans: 11/529** •[1] identify one part of employee number •[2] complete employee number	•[1] (20)11 or 529 •[2] 11/529 **2R**
12 (a)	**Ans: 1·5(0) metres** •[1] know that 1 metre = 100 centimetres •[2] write breadth in metres	•[1] 100 •[2] 1·5(0) **2K**
NOTES: 1. For an answer of 1m 50cm with or without working — award 1/2 2. For an answer of 15 (150 ÷ 10) or 0·15 (150 ÷ 1000) with working — award 1/2 3. For an answer of 15 or 0·15 without working — award 0/2		
(b)	**Ans: 4·05 square metres** •[1] know how to find area of table top •[2] carry out calculation correctly	•[1] 2·7 × 1·5 •[2] 4·05 **2K**
NOTES: 1. For working subsequent to a correct answer, eg correct answer ÷ 2, with working — award 1/2 2. For a correct calculation of perimeter — award 0/2		

<table>
<tr><th>Question No</th><th>Give 1 mark for each •</th><th>Illustrations of evidence for awarding each mark</th></tr>
<tr><td>13</td><td>Ans:
<table>
<tr><th>20p</th><th>10p</th><th>5p</th><th>2p</th><th>1p</th></tr>
<tr><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>2</td><td>1</td></tr>
<tr><td>0</td><td>3</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>0</td><td>2</td><td>2</td><td>0</td><td>0</td></tr>
<tr><td>0</td><td>2</td><td>1</td><td>2</td><td>1</td></tr>
<tr><td>0</td><td>1</td><td>3</td><td>2</td><td>1</td></tr>
</table>
•[1] find one possibility
•[2] find more possibilities
•[3] find more possibilities</td><td>•[1] one row correct
•[2] another two rows correct
•[3] another two rows correct
3R</td></tr>
<tr><td colspan="3">NOTES:
1. For answers listed below
20, 10
20, 5, 2, 2, 1
10, 10, 10
10, 10, 5, 5
10, 10, 5, 2, 2, 1
10, 5, 5, 5, 2, 2, 1
} award 2/3 for five rows correct
award 1/3 for three or four rows correct</td></tr>
<tr><td>14</td><td>Ans: London
•[1] name warmest city</td><td>•[1] London
1K</td></tr>
<tr><td colspan="3">NOTES:
1. Accept -1ºC.</td></tr>
</table>

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
15	**Ans: C, B, A, D** •[1] satisfy one condition •[2] satisfy another condition •[3] satisfy final condition and label boxes	•[1] B < A •[2] C < B •[3] A < D and C, B, A, D **3R**

NOTES:

1. POSSIBLE ANSWERS

Answers beginning with A along with marks to be awarded
ABCD 1/3, ABDC 1/3, ACBD 2/3, ACDB 2/3, ADBC 1/3, ADCB 2/3

Answers beginning with B along with marks to be awarded
BACD 2/3, BADC 2/3, BCAD 2/3, BCDA 1/3, BDAC 1/3, BDCA 1/3

Answers beginning with C along with marks to be awarded
CABD 2/3, CADB 2/3, CBAD 3/3, CBDA 2/3, CDAB 1/3, CDBA 2/3

Answers beginning with D along with marks to be awarded
DABC 0/3, DACB 1/3, DBAC 1/3, DBCA 1/3, DCAB 1/3, DCBA 2/3

2. Where a candidate enters fewer than three letters or duplicate letters, apply the marking scheme.

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
16	**Ans: 177·8 centimetres** •[1] substitute into formula •[2] carry out calculations correctly	•[1] 254 × 70 ÷ 100 •[2] 177·8 **2K**

NOTES:

1. Accept 177 or 178.
2. For an answer of 27·5(…) (100 × 70 ÷ 254) with working award 1/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
17 (a)	**Ans: £840**	
	•[1] know how to find cost of books	•[1] $200 \times 4{\cdot}20$
	•[2] find cost of books	•[2] 840
		2K
(b)	**Ans: a profit (with reason)**	
	•[1] know how to find number of remaining books	•[1] $200 - 120$
	•[2] know how to find selling price	•[2] $120 \times 5{\cdot}50 + (200 - 120) \times 3{\cdot}50$
	•[3] carry out calculations correctly	•[3] £940
	•[4] correct conclusion with reason	•[4] profit with reason
		4R

NOTES:

1. For an answer of 80 with or without working award 1/4
2. The reason must refer to both cost price and selling price or the difference between them
   eg
   The bookseller made a profit because £940 is more than £840.
   The bookseller made a profit of £100.
3. Do not accept "yes" without reference to profit or loss.

KU 26 marks
RE 26 marks

FINAL TOTALS	**KU 40** **RE 40**

[END OF PAPER 2 MARKING INSTRUCTIONS]