2011 Mathematics

Standard Grade − Foundation

Paper 1 and Paper 2

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 $\sin x^0 = 0{\cdot}5 = 30^0$.

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.

2011 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: £15·28** •[1] multiply £3·82 by 4	•[1] £15·28 **1K**
(b)	**Ans: 419** •[1] subtract 416 from 835	•[1] 419 **1K**
(c)	**Ans: 42** •[1] know how to find $\frac{1}{7}$ of 294 •[2] find $\frac{1}{7}$ of 294	•[1] 294 ÷ 7 •[2] 42 **2K**
NOTES:		
2	**Ans: 38 goals** •[1] know how to find 50% of 76 •[2] carry out calculation correctly	•[1] 76 ÷ 2 or equivalent •[2] 38 **2K**

NOTES:

1.

Final Answers		**with working**	**without working**
38		2/2	2/2
25·3(333…)	$(33\frac{1}{3}\%)$	1/2	0/2
19	(25%)	1/2	0/2
15·2	(20%)	1/2	0/2
7·6	(10%)	1/2	0/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
3	**Ans:** **Scottish Scottish Scottish** **Scottish Scottish English** **Scottish English English** **English English English** **English English Scottish** **English Scottish English** **English Scottish Scottish** •[1] find some possibilities •[2] find more possibilities •[3] find another possibility	•[1] two correct rows •[2] a further two correct rows •[3] a fifth correct row **3R**
NOTES:		
4	**Ans:** **North-East, West** •[1] interpret direction •[2] interpret direction	•[1] North-East (accept East-North) •[2] West **2K**
NOTES:		
5	**Ans:** **6 trips** •[1] know how to calculate number of trips •[2] correctly rounded answer	•[1] $17 \div 3$ •[2] 6 **2K**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
6	**Ans: 1506**	
	$\bullet^1\bullet^2$ interpret the text	$\bullet^1\bullet^2$ M = 1000, D = 500, V = 5, I = 1 (award 1 mark for any 2 correct)
	$\bullet^3$ know to add	$\bullet^3$ 1000 + 500 + 5 + 1
	$\bullet^4$ add correctly	$\bullet^4$ 1506
		4R

NOTES:

1. For an answer of 1551
   (a) from 1000 + 500 + 5 + 1 — award 3/4
   (b) from 1000, 500, 5, 1 — award 2/4
   (c) with no working — award 0/4

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
7 (a)	**Ans: graphs correctly completed**	
	$\bullet^1$ show 3°C in Venice graph	$\bullet^1$ Evidence
	$\bullet^2$ show –6°C in Stockholm graph	$\bullet^2$ Evidence
		2K
(b)	**Ans: 9°C**	
	$\bullet^1$ use graphs to find difference between 3 and –6 or equivalent	$\bullet^1$ Evidence (see NOTE 1)
	$\bullet^2$ correctly find difference	$\bullet^2$ 9
		2R

NOTES:

1. Examples of evidence for the first mark
   (a) 3 – (–6) or 3 + 6 or –3 – 6 or –6 – 3
   (b) A number line clearly marked from 3 to –6
   (c) Markings on graphs indicating an interval from 3 to –6

2. For evidence of 3 → (–6) followed by no answer or a wrong answer, award 0/2

3. Where the graphs in part (a) have been completed incorrectly, full marks are available in part (b) for either following through **or** 9

4. For an answer of –9, with or without working, award 1/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
8 (a)	**Ans: 4.30 pm** •[1] give correct answer as a 12 hour time	•[1] 4.30 pm **1K**

NOTES:

1. Do not accept 4.30

2. Accept 04:30 pm

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
(b)	**Ans: Yes, with appropriate comparison**	
	•1•2 correct strategy	•1•2 See NOTE 1
	•3 all calculations correct	•3 1610 or equivalent
	•4 valid conclusion with comparison	•4 Yes, since 1610 is before 1630
		4R

NOTES:

1. A correct strategy could be
   1410 + 1h15m + 45m
   1630 – 45m **and** 1410 + 1h15m
   1630 – 1h15m **and** 1410 + 45m
   1630 – 1h15m – 45m
   1630 – 1410 – 1h15m
   1630 – 1410 – 45m
   (Award 1 for a partial strategy from any of the above)

2. For the third mark, two related calculations are required.

3. A valid conclusion could be
   Yes, since 1610 is before 1630
   Yes, since 1525 is before 1545
   Yes, since 1455 is before 1515
   Yes, since 1410 is before 1430
   Yes, since 1h5m is more than 45m
   Yes, since 1h35m is more than 1h15m
   Yes, since he has 20 minutes to spare

4. Some common answers (with or without working)

1525 (1410 + 1h15m)	award 1/4
1455 (1410 + 45m)	award 1/4
1545 (1630 – 45m)	award 1/4
1515 (1630 – 1h15m)	award 1/4
2h (1h15m + 45m)	award 1/4
2h20m (1630 – 1410)	award 1/4
1610	award 3/4
1525 **and** 1545	award 3/4
1455 **and** 1515	award 3/4
1430	award 3/4
1h5m	award 3/4
1h35m	award 3/4

5. Where a candidate uses the same time twice eg 45m + 45m instead of 45m + 1h15m, 3/4 are still available.

KU 13 marks
RE 13 marks

[END OF PAPER 1 MARKING INSTRUCTIONS]

2011 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: £29 840** •[1] know how to find selling price •[2] subtract correctly	 •[1] 32 300 – 2460 •[2] 29 840 **2K**
NOTES:		
2	**Ans: 216 cubic centimetres** •[1] know how to calculate volume •[2] correctly calculate volume	 •[1] $9 \times 6 \times 4$ •[2] 216 **2K**
NOTES: 1. For working subsequent to a correct answer, eg correct answer ÷ 2, with working award 1/2		
3	**Ans: correctly completed diagram** •[1] start to reduce •[2] continue to reduce •[3] continue to reduce •[4] complete reduction	 •[1] *body* correct •[2] *arms* correct •[3] *legs* correct •[4] *feet* correct **4R**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
4 (a)	**Ans: 24 square centimetres** •¹ know how to find area •² calculate area correctly	•¹ 6×4 •² 24 **2K**

NOTES:

1. For working subsequent to a correct answer, eg correct answer ÷ 2, with working award 1/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
(b)	**Ans: 8cm, 8cm, 3cm, 3cm** •¹ try some possibilities •² correct answer	•¹ evidence (see NOTE 2) •² 8, 8, 3, 3 **2R**

NOTES:

1. For answers of $8 \times 3 = 24$ or 8cm, 3cm award 2/2
2. Evidence of trying some possibilities could be a minimum of two from 12×10, 12×8, 12×3, 12×1, 10×8, 10×3, 10×1, 8×3, 8×1, 3×1
3. Where a candidate has calculated the perimeter in part (a), with working, leading to an answer of 20, 1/2 may be awarded in part (b) for an answer of 8, 8, 3, 1 or 10, 8, 1, 1

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
5	**Ans: 36°** •¹ know how many degrees in a complete turn •² know how to find shaded angle •³ divide correctly	•¹ 360 •² $360 \div 10$ •³ 36 **3K**

NOTES:

1. For an answer of 18° ($180 \div 10$), with or without working award 2/3

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
6 (a)	**Ans:**	

Shelf Size	1	2	3	4	5	6		13
Number of Pieces of Wood	4	7	**10**	**13**	**16**	**19**		**40**

Give 1 mark for each •	Illustrations of evidence for awarding each mark
•1 interpret diagram and continue pattern	•1 10
•2 continue pattern	•2 13, 16, 19
•3 know how to extend pattern	•3•4 40 (award 1 for evidence of extended pattern but with 1 error)
•4 extend pattern	**4R**

NOTES:

1. Follow through errors
   3/4 can be awarded for a "correct continuation" with one error

eg	4, 7, 9, 11, 13, 15	……………………..	29	award 3/4
	4, 7, 9, 12, 15, 18	…………………….	39	award 3/4
	4, 7, 11, 14, 17, 20	…………………….	41	award 3/4
	4, 7, 11, 15, 19, 23	…………………….	51	award 3/4
	4, 7, 11, 16, 22, 29	…………………….	106	award 3/4
	4, 7, 12, 19, 28, 39	…………………….	172	award 3/4

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
(b)	**Ans:** **× 3 + 1**	
	•1•2 generalise pattern	•1•2 × 3 + 1 or equivalent **2R**

NOTES:

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

2. Do not accept "it goes up in threes" or "add on three for each shelf size"

3. Where a follow through 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
   4, 7, 9, 11, 13, 15….29 in part (a) followed by × 2 + 3 in (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
7 (a)	**Ans: 6 (± 0·2) cm** •¹ correctly measure distance	•¹ 6 (± 0·2) cm **1K**
(b)	**Ans: 300 (± 10) cm** •¹ know to multiply (a) by 50 •² multiply correctly	•¹ 6 (± 0·2) × 50 •² 300 (± 10) **2K**
NOTES: 1. Where the answer in part (a) includes a decimal point, eg 5·9 cm, for an answer in part (b) of 250·9 cm (50 × 5 + 0·9), with or without working, award 1/2		
(c)	**Ans: 3 (± 0·1)m** •¹ Convert (b) to metres	•¹ 3 (± 0·1) **1K**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
8 (a)	**Ans: £145** •[1] extract information from table	•[1] 145 **1K**
(b)	**Ans: E** •[1] strategy for finding cost for 1 car •[2] divide correctly •[3] interpret information in table	•[1] 340 ÷ 2 •[2] 170 •[3] E **3R**
NOTES: 1. For an answer of 166 – 185, with or without working, award 2/3		
9 (a)	**Ans: 5** •[1] find mode	•[1] 5 **1K**
(b)	**Ans: 4 and 7** •[1] interpret information in table and diagram •[2] interpret information in table and diagram	•[1] 4 •[2] 7 **2R**
NOTES:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
10 (a)	**Ans: £3·85** •[1] know how to calculate discount •[2] find discount correctly	•[1] $\frac{35}{100} \times 11$ (must be evidence of × 35 **and** ÷ 100) •[2] 3·85 **2K**
(b)	**Ans: £7·15** •[1] know how to calculate fare •[2] subtract correctly	•[1] 11 – 3·85 •[2] 7·15 **2K**

NOTES:

1. Where the working for part (b) appears in the working box for part (a), full marks are available.

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
11 (a)	**Ans: 9** •[1] find value of T	•[1] 9 **1K**
(b)	**Ans: A = 7, B = 4, C = 6** •[1] first side satisfies rule •[2] second side satisfies rule •[3] final side satisfies rule	•[1] C = 6 •[2] B + C = 10 •[3] B + 3 = A **3R**

NOTES:

1. Only accept rule given in the question.
2. If **correct** answer is clearly shown on the diagram and is incorrectly transferred to the answer box, eg A = 6, B = 4, C = 7, award 3/3

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
12	**Ans: £6150**	
	•[1] know how to find payments total	•[1] 36 × 150
	•[2] multiply correctly	•[2] 5400
	•[3] know to add deposit	•[3] 5400 + 750
	•[4] add correctly	•[4] 6150
		4K

NOTES:

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
13	**Ans: 6 years old**	
	•[1] start strategy	•[1] 2003 – 1996
	•[2] recognise incomplete year	•[2] 2003 – 1996 – 1
	•[3] carry out all calculations correctly	•[3] 6
		3R

NOTES:

1. For an answer of 6 plus a part of a year, eg 6 ½, with or without working, award 3/3
2. For an answer of 7 (2003 – 1996), with or without working, award 1/3
3. For an answer of 8 arising as shown
   8 (2003 – 1996 + 1) award 2/3
   8 (2003 – 1996 = 7 plus a reference to the incomplete year (July – Feb)) award 2/3

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
14	**Ans: £259**	
	•[1] substitute into formula	•[1] 35 + (8 × 28)
	•[2] carry out calculations in correct order	•[2] 8 × 28 + 35
	•[3] multiply and add correctly	•[3] 259
		3K

NOTES:

1. For an answer of 1204 [(35 + 8) × 28], with or without working, award 2/3

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
15	**Ans: 45 centimetres**	
	•1•2 strategy for diameter	•1•2 150 – (30 × 2) (award 1 for 150 – 30 or 30 × 2)
	•3 know radius is half of diameter	•3 90 ÷ 2
	•4 carry out all calculations correctly (must include a division by 2 and a subtraction)	•4 45 **4R**

NOTES:

1. ALTERNATIVE STRATEGY

•1•2•3	strategy for radius	•1•2•3	(150 ÷ 2) – 30 (award 1 for 150 ÷ 2)
•4	carry out all calculations correctly	•4	45

2. Some Common Answers

90	[150 – (30 × 2)]	with or without working	award 2/4
60	(150 – 30) ÷ 2	with working	award 3/4
60	(2 × 30)	with working	award 1/4
60		without working	award 1/4
120	(150 – 30)	with or without working	award 1/4
75	(150 ÷ 2)	with or without working	award 1/4

3. Using a circle formula:
Where r is replaced by 45 in πr^2 award 4/4
Where d is replaced by 90 in πd award 2/4
[Ignore any subsequent working]

KU 27 marks
RE 27 marks

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

[END OF PAPER 2 MARKING INSTRUCTIONS]