SCOTTISH QUALIFICATIONS AUTHORITY

2005 Mathematics

Standard Grade – Foundation Paper 1 and Paper 2

Finalised Marking Instructions

These Marking Instructions have been prepared by Examination Teams for use by SQA Appointed Markers when marking External Course Assessments.

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 is 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 is not normally penalised except where the question has been simplified as a result.

2004 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: 3630** •[1] correctly subtract 261 from 3891	•[1] 3630 1K mark
(b)	**Ans: 30·72** •[1] correctly multiply 5·12 by 6	•[1] 30·72 1K mark
(c)	**Ans: 38** •[1] know how to find ⅓ of 114 •[2] find ⅓ of 114	•[1] 114 ÷ 3 •[2] 38 2K marks
2	**Ans: £2·40** •[1] know how to find 25% of £9·60 •[2] carry out calculation correctly	•[1] 9·60 ÷ 4 or equivalent •[2] 2·4(0) 2K marks

Notes:

Answers		**With working**	**Without working**
£2.4(0)		2/2	2/2
£4.8(0)	(50%)	1/2	0/2
£3.2(0)	(33⅓%)	1/2	0/2
£1.92	(20%)	1/2	0/2
£0.96	(10%)	1/2	0/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
3 (a)	**Ans: 5.40 pm** •[1] write as a 12-hour time	•[1] (0)5.40 1K mark
Notes: 1. For answers of: "forty minutes past five" **or** "twenty to six" award 1/1		
(b)	**Ans: 2h 35m** •[1] know to find time difference •[2] find time difference	•[1] 1740 → 2015 •[2] 2h 35m 2K marks
Notes:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
4 (a)	**Ans: 2 December** $\bullet^1$ know how to find return date $\bullet^2$ find return date	 $\bullet^1$ 18 November + 14 days $\bullet^2$ 2 December 2K marks
Notes: 1. 1st Dec (no working necessary) award 1/2 2. 2nd of Any Month (no working necessary) award 1/2		
(b)	**Ans: 45p** $\bullet^1$ $\bullet^2$ correct method $\bullet^3$ carry out all calculations correctly (must include a multiplication)	 $\bullet^1$ $\bullet^2$ $(30 - 7 - 14) \times 5$ [award 1 for an otherwise correct method with one missing or incorrect step] $\bullet^3$ 45 3R marks
Notes: 1. 115 [(30 – 7) × 5] 105 [(14 + 7) × 5] } (no working necessary) award 2/3 80 [(30 – 14) × 5] 9 [30 – 14 – 7] (no working necessary) award 1/3		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
5	**Ans: 152 cm**	
	$\bullet^1\bullet^2$ know how to find diameter	$\bullet^1\bullet^2$ $56 + 2 \times 20 + 56$ [award 1 for an otherwise correct method with one missing or incorrect step]
	$\bullet^3$ carry out all calculations correctly	$\bullet^3$ 152
		3R marks

Notes:

1. 96 [$2 \times 20 + 56$] } (no working necessary) award 2/3
   132 [$2 \times 56 + 20$] }

   40 [2×20] }
   112 [2×56] } (no working necessary) award 1/3
   76 [$20 + 56$] }

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
6 (a)	**Ans: South-east** •[1] state direction	•[1] south-east 1K mark
Notes: 1. Accept east-south		
(b)	**Ans: 3·7 (± 0·2) cm** •[1] measure distance	•[1] 3·7 (± 0·2) 1K mark
(c)	**Ans: 370 (± 20) m** •[1] know to multiply (b) by 100 •[2] multiply correctly	•[1] 3·7 (± 0·2) × 100 •[2] 370 (± 20) 2K marks
Notes: 1. The second mark is not available if the answer to (b) is a whole number. 2. For an answer of 0·037 (± 0·002) m (3·7 ÷ 100) award 1/2 3. For answers of 300·7 or 307, with or without working award 1/2		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
7	**Ans: Bolden (with reason)** •[1] know how to find distance from Bolden to Airport •[2] know how to find distance from Cranley to airport •[3] carry out calculation(s) correctly, state conclusion and give reason (must refer to both distances or difference between them).	•[1] 53 – 18 •[2] 18 + 24 •[3] Bolden 3R marks

Notes:

SOME SAMPLE ANSWERS		**MARKS**
1.	Bolden because it is 35 km from airport and Cranley is 42 km	3/3
2.	Cranley because it is 24 km from airport and Bolden is 35 km	2/3
3.	Cranley because it is 42 km from airport and Bolden is 53 km	2/3
4.	Cranley because it is 6 km from airport and Bolden is 35 km	2/3
5.	Cranley because it is 42 km from airport and Bolden is 71 km	2/3
6.	Cranley because it is 6 km from airport and Bolden is 71 km	1/3
7.	Cranley because it is 24 km from airport and Bolden is 53 km	0/3

KU 15 marks
RE 9 marks

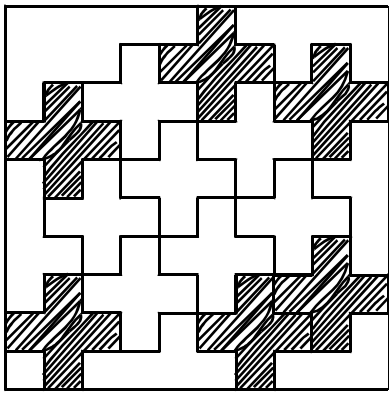
[END OF PAPER 1 MARKING INSTRUCTIONS]

2005 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: 32°** •[1] know to subtract 58° from 90° •[2] subtract correctly	•[1] 90 – 58 • 32 2K marks
Notes:		
2 (a)	**Ans: – 3° C** •[1] interpret line graph	•[1] – 3 1K mark
(b)	**Ans: It went down** •[1] interpret trend in line graph	•[1] it went down 1K mark
Notes: 1. In part (b), ignore any numerical values.		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
3	**Ans:**  •[1] interpret diagram and continue pattern •[2] continue pattern •[3] continue pattern	•[1] one tile added to pattern •[2] second tile added to pattern •[3] third tile added to pattern 3R marks
Notes:		
4 (a)	**Ans: 24** •[1] find mode	•[1] 24 1K mark
(b)	**Ans: 23** •[1] know how to find mean •[2] divide correctly	•[1] 161 ÷ 7 •[2] 23 2K marks
Notes: 1. If the answer to part (b), 23, is given in part (a), with working 161 ÷ 7, award 0/1 for part (a) and 1/2 for part (b).		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
5	**Ans:** 3 4 5 5 3 4 5 4 3 4 5 3 4 3 5 4 4 4 5 5 2 2 5 5 •[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 marks
Notes:		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
6 (a)	**Ans: 15 square metres** •[1] know how to find area of rectangle •[2] correctly calculate area of rectangle	•[1] $2{\cdot}5 \times 6$ •[2] 15 2K marks
Notes: 1. For working subsequent to a correct answer, eg correct answer ÷ 2, with working, award 1/2		

PLEASE TURN OVER FOR QUESTION 6 (b)

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
6 (b)	**Ans: Yes (with reason)**	
	METHOD 1	
	•[1] know that 1 kg = 1000g	•[1] 1000
	•[2] know to find amount of seed needed	•[2] 15 × 50
	•[3] carry out calculation correctly, state conclusion and give valid reason (must refer to both amounts or difference between them)	•[3] Yes, 750 < 1000
	METHOD 2	
	•[1] know that 1 kg = 1000g	•[1] 1000
	•[2] know to find area that one packet can cover	•[2] 1 kg ÷ 50
	•[3] carry out calculation correctly, state conclusion and give valid reason (must refer to both amounts or difference between them)	•[3] Yes, since 20 > 15
	METHOD 3	
	•[1] know that 1 kg = 1000g	•[1] 1000
	•[2] know to find number of grams available per square metre	•[2] 1 kg ÷ 15
	•[3] carry out calculation correctly, state conclusion and give valid reason (must refer to both amounts or difference between them)	•[3] Yes, since 66·6 > 50 3R marks

Notes:

1. For answers of No, 750 > 100
No, 2 < 15
No, 6·66 < 50 } (1 kg = 100 g) award 2/3

2. 0·02 (1 ÷ 50) or 0·066 (1 ÷ 15) award the second mark.

3. Final answers (with or without working)

   (a) 750, 2, 6·66 award 1/3

   (b) 20, 66·6 award 2/3

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
7	**Ans: £37·76** •[1] know to divide 23·60 by 5 •[2] know to multiply above by 8 •[3] divide and multiply correctly	•[1] 23·60 ÷ 5 •[2] 23·60 ÷ 5 × 8 •[3] 37·76 3K marks

Notes:

1. **SPECIAL CASES**

(£) 4.72	(23·60 ÷ 5)	award 1/3	(with or without working)
(£) 188.80	(23·60 × 8)		
(£) 14.75	(23·60 ÷ 8 × 5)	award 2/3	(with or without working)

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
8 (a)	**Ans:** Floor | 1 | 2 | 3 | 4 | 5 | 6 | | 11 Height | 4 | 7 | 10 | 13 | 16 | 19 | | 34 $\bullet^1$ interpret diagram and continue pattern $\bullet^2$ continue pattern $\bullet^3$ know how to extend pattern $\bullet^4$ extend pattern	$\bullet^1 \bullet^2$ 10, 13, 16, 19 (award 1 for any two correct) $\bullet^3 \bullet^4$ 34 (award 1 for evidence of extended pattern but with one error) 4R marks
Notes: 1. "Correct" extension of pattern involving (a) 2 – step rule, eg 4, 7, 11, 15, 19, 23, …….43 (ie H = 4f – 1 for f ≥ 3) award 2/4 (b) 1 – step rule, eg 4, 7, 9, 12, 15, 18, ……...33 (ie H = 3f for f ≥ 3) award 1/4		
(b)	**Ans: × 3 + 1** $\bullet^1 \bullet^2$ generalise pattern	$\bullet^1 \bullet^2$ × 3 + 1 or equivalent 2R marks
Notes: 1. Accept "bad form" eg floor + floor + floor + 1 2. Do not accept "it goes up in threes" or "add on three for each floor"		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
9 (a)	**Ans: 3**	
	$\bullet^1$ know to divide 30 by 12	$\bullet^1$ 30 ÷ 12 (or equivalent)
	$\bullet^2$ divide correctly and round up	$\bullet^2$ 3
		2 K marks
(b)	**Ans: 4 teachers** **46 pupils**	
	$\bullet^1$ know to divide 50 by 12 (or 13)	$\bullet^1$ 50 ÷ 12 (or 50 ÷ 13)
	$\bullet^2$ divide correctly and round to 4	$\bullet^2$ 4 (teachers)
	$\bullet^3$ find number of pupils	$\bullet^3$ 46
		3R marks

Notes:

1. For 1st mark, accept repeated addition of 12 (minimum 12 + 12 + 12 = 36) or 13

2. **COMMON ANSWERS**

   4 teachers award 2/3
   3 teachers 36 pupils award 1/3

3. The final mark should be awarded where the number of pupils + teachers = 50

10	**Ans: 4**	
	$\bullet^1$ $\bullet^2$ $\bullet^3$ strategy	$\bullet^1$ $\bullet^2$ $\bullet^3$ knows to multiply £3·20 by 2, subtract answer from £26, then divide by £4·90 (award 1 or 2 for partial strategy)
	$\bullet^4$ all calculations correct (at least two, must include a division)	$\bullet^4$ 4
		4R marks

Notes

1. £6.40 without working award 1/4

2. £19.60 without working award 2/4

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
11 (a)	**Ans: 5 cm, 3 cm, 2 cm** •[1] interpret diagram •[2] interpret diagram •[3] interpret diagram	•[1] length = 5 cm •[2] breadth = 3 cm •[3] height = 2 cm (accept answers in any order) 3R marks
Notes:		
(b)	**Ans: 30 cm^3** •[1] know to multiply $1 \times b \times h$ from (a) •[2] multiply $1 \times b \times h$ correctly	•[1] $5 \times 3 \times 2$ •[2] 30 2K marks
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
12	**Ans: £57** **£2·85** **£59·85**	
	•[1] know how to find cost of units used	•[1] 950 × 6
	•[2] multiply money correctly	•[2] (£)57
	•[3] know how to find VAT	•[3] 57 × 5 ÷ 100 (must be evidence of × 5 **and** ÷ 100)
	•[4] find VAT correctly	•[4] 2·85
	•[5] find Total correctly	•[5] 59·85
		5K marks

Notes:

1. For (£) 158·33 → (£) 7·91 or 7·92 → (£) 166·24 or 166·25 award 3/5
   [158·33 = 950 ÷ 6]

2. For (£) 57 → (£) 11·40 → (£) 68·40 or 68·4 award 3/5
   [11·40 = 57 ÷ 5]

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
13 (a)	**Ans: £85 500** $\bullet^1$ substitute into formula $\bullet^2$ carry out calculations	$\bullet^1$ $3{\cdot}5 \times 23\,000 + 5000$ $\bullet^2$ 85 500 2K marks
(b)	**Ans: £7600** $\bullet^1 \bullet^2$ strategy $\bullet^3$ carry out calculations correctly (must include a subtraction)	$\bullet^1 \bullet^2$ $82\,500 - (3{\cdot}5 \times 21\,400)$ [award 1 for $3{\cdot}5 \times 21\,400$] $\bullet^3$ 7 600 3R marks

Notes:

1. (£) 74 900 $(3{\cdot}5 \times 21\,400)$ with or without working — award 1/3
2. (£) 61 100 $(82\,500 - 21\,400)$ with or without working — award 0/3
3. (£) 17 457 (.14..) $[(82\,500 - 21\,400) \div 3{\cdot}5]$ with or without working — award 1/3 (3^{rd} mark)

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark
14 (a)	**Ans: 400 miles** •[1] know to multiply 10 by 40 •[2] multiply correctly	•[1] 10×40 •[2] 400 2K marks

Notes:

1. For working subsequent to a correct answer — award 1/2
2. 700 (10×70) with or without working — award 1/2

(b)	**Ans: 100 miles** •[1] know to multiply 10 by 50 •[2] know to subtract (a) from answer •[3] multiply and subtract correctly	•[1] 10×50 •[2] $10 \times 50 - 400$ •[3] 100 3R marks

Notes:

1. 500 (10×50) with or without working — award 1/3
2. **Where the answer to part (a) is 700:**
   If the answer to part (b) is
   - (a) 550 (10×55) with or without working — award 1/3
   - (b) 150 ($700 - 10 \times 55$) with or without working — award 2/3
   - (c) –150 ($10 \times 55 - 700$) with or without working — award 3/3

KU 25 marks
RE 31 marks

[END OF PAPER 2 MARKING INSTRUCTIONS]

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