SCOTTISH QUALIFICATIONS AUTHORITY

2006 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 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.

2006 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: 2793** •[1] add 2315 and 478	•[1] 2793
(b)	**Ans: £ 20 · 85** •[1] multiply £ 4 · 17 by 5	•[1] £ 20 · 85
(c)	**Ans: 82 metres** •[1] know how to find 50 % of 164 metres •[2] carry out calculation correctly	•[1] $164 \div 2$ or equivalent •[2] 82

NOTES:

Answers		**with working**	**without working**
82m		2/2	2/2
54·6 (666…) m	$(33\frac{1}{3}\ \%)$	1/2	0/2
41m	(25%)	1/2	0/2
32·8m	(20%)	1/2	0/2
16·4m	(10%)	1/2	0/2

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
2 (a)	**Ans: £10·80** $\bullet^1$ correctly calculate total	$\bullet^1$ £10·80
(b)	**Ans: £4·30** $\bullet^1\bullet^2$ know how to find cost of salmon salad $\bullet^3$ carry out all calculations correctly (must involve two calculations)	$\bullet^1\bullet^2$ $6\cdot95-(1\cdot75+0\cdot90)$ (award 1 for $1\cdot75+0\cdot90$ or $6\cdot95-1\cdot75$ or $6\cdot95-0\cdot90$) $\bullet^3$ £4·30 3R marks

NOTES:

1. 2·65 (1·75 + 0·90) award 1/3 with or without working
2. 5·20 (6·95 - 1·75) award 1/3 with or without working
3. 6·05 (6·95 - 0·90) award 1/3 with or without working

3 (a)	**Ans: $\frac{3}{8}$** $\bullet^1$ state correct fraction	$\bullet^1$ $\frac{3}{8}$ or equivalent 1K mark
(b)	**Ans: 12 pupils** $\bullet^1\bullet^2$ know how to find number of pupils absent $\bullet^3$ carry out all calculations correctly (must involve two calculations)	$\bullet^1\bullet^2$ $32\div8\times3$ (award 1 for $32\div8$ or 32×3) $\bullet^3$ 12

NOTES:

1. 20 $\left(\frac{5}{8}\text{of }32\right)$ award 2/3 with or without working
2. 4 $(32\div8)$ award 1/3 with or without working
3. 96 (32×3) award 1/3 with or without working
4. Where the answer to part (a) is a fraction with numerator 1, the maximum mark available in part (b) is 1/3, eg $\frac{1}{3}$ in (a) followed by $32\div3=10$ or 11 award 1/3.

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
4 (a)	**Ans: Box (ii) indicated** •[1] indicate acute angle	•[1] Box (ii) indicated
(b)	**Ans: 50 $(\pm 2)°$** •[1] correctly measure angle	•[1] 50 $(\pm 2)°$ 1K mark
NOTES:		
5	**Ans: Yes, their total weight is 102 Kg and 105 Kg is allowed** •[1] know to add weights •[2] add weights correctly, state conclusion and give reason (must refer to answer and safety limit or the difference between them)	•[1] 54 + 48 •[2] Yes, with reason 2R marks

NOTES:

1. **Sample answer**
   54 + 48 = 102
   yes, they are under 105 award 2/2.

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
6 (a)	**Ans: 16 days** •[1] know how to find number of days •[2] calculate number of days correctly	•[1] $27 - 12 + 1$ or evidence of counting •[2] 16 2K marks
NOTES: 1. 15 award 1/2 with or without working		
(b)	**Ans: 6 November** •[1] know how to find finish date •[2] find finish date	•[1] 27 October + 10 days •[2] 6 November
NOTES: 1. 7 November award 1/2 with or without working 2. 6th of any month award 1/2 with or without working 3. 37 award 0/2 without working		

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
7 (a)	**Ans: 7 sheep** $\bullet^1$ write down number of sheep	$\bullet^1$ 7 1K mark
(b)	**Ans: bar graph completed showing 6 goats** $\bullet^1\bullet^2$ know how to find number of goats $\bullet^3$ correctly calculate number of goats <u>and</u> complete bar graph	$\bullet^1\bullet^2$ $34 - (10 + 7 + 8 + 3)$ (award 1 for $10 + 7 + 8 + 3$) $\bullet^3$ 6 goats shown on graph

NOTES:

1. Where no working is shown for the total of cows + sheep + pigs + dogs, 2/3 may be awarded for a correct subtraction from 34 followed by completion of bar graph, eg $34 - 27 = 7$, 7 goats indicated on graph, award 2/3.

KU 13 marks
RE 11 marks

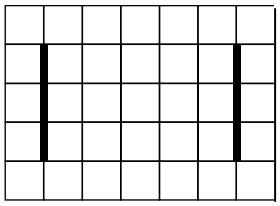
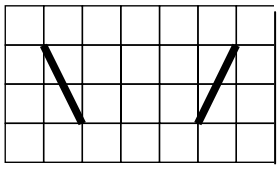
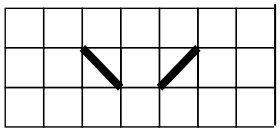
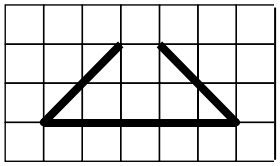
[END OF PAPER 1 MARKING INSTRUCTIONS]

2006 Mathematics SG − Foundation Level – Paper 2

Marking Instructions

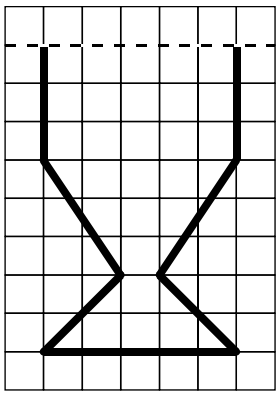
Award marks in whole numbers only

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
1	**Ans: £2900** •[1] list costs for adults •[2] list costs for children •[3] correct addition of listed costs (at least three numbers)	 •[1] £950, £950 •[2] £625, £375 •[3] £2900
NOTES:		

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
2	**Ans: correctly completed diagram** $\bullet^1$ first pair of lines correct $\bullet^2$ second pair of lines correct $\bullet^3$ third pair of lines correct $\bullet^4$ correctly complete diagram	$\bullet^1$  $\bullet^2$  $\bullet^3$  $\bullet^4$ 

NOTES:

1. Special Case:
   Where the second and third pairs of lines have been combined into single lines, 3 down and 2 in, as shown in the diagram, award 3/4.



Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
3 (a)	**Ans: 2 hours 30 minutes** •[1] correctly calculate time interval	•[1] 2 h 30 min
(b)	**Ans: 15 miles** •[1] know to multiply time by 6 •[2] carry out multiplication correctly	•[1] 2 h 30 min × 6 •[2] 15 miles 2K marks

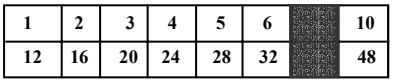
NOTES:

1. 13·8 (6 x 2·30) award 1/2 with or without working.
2. Where an answer of 3h30m is given in part (a), award 2/2 for an answer of 21 miles in part (b), with or without working.
3. Where there are no minutes in the answer to part (a), the second mark is not available in part (b).
4. Where the candidate only multiplies the hours by 6 and not the minutes, eg 6 x 2h30m becomes 6 x 2 = 12, award 0/2.
5. 12.5 (6 x 2 + ½) award 0/2 with or without working.

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
4 (a)	**Ans: – 15° Celsius** •[1] state temperature	•[1] – 15° Celsius
(b)	**Ans: 27° Fahrenheit** •[1] convert both temperatures to Fahrenheit •[2] know to subtract temperatures •[3] carry out subtraction correctly	•[1] 50° F, 23° F •[2] 50 – 23 •[3] 27° Fahrenheit

NOTES:

1. 27 (50-23) award 3/3 with or without working
2. -27 (23-50) award 2/3 with or without working
3. 15 [10-(-5)] award 2/3 with or without working
4. -15 (-5-10) award 1/3 with or without working
5. For 15°C followed by an answer of 59°F award 2/3
6. 59 award 0/3 without working
7. Where 1 conversion is incorrect, 2/3 or 1/3 are still available
   eg 50-41 = 9 award 2/3
   14-23 = -9 award 2/3
   23-14 = 9 award 1/3
8. Where both conversions are incorrect, only the 3rd mark is available.

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
5 (a)	**Ans:**  •[1] interpret diagram and continue pattern •[2] continue pattern •[3] know how to extend pattern •[4] extend pattern	•[1] 20 •[2] 24, 28, 32 •[3]•[4] 48 (award 1 for evidence of extended pattern but with one error)

NOTES:

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

   eg 12, 16, 19, 23, 27, 31……47 award 3/4
   12, 16, 19, 22, 25, 28……40 award 3/4
   12, 16, 21, 25, 29, 33……49 award 3/4
   12, 16, 21, 26, 31, 36……56 award 3/4
   12, 16, 21, 27, 34, 42……84 award 3/4
   12, 16, 22, 30, 40, 52……120 award 3/4

(b)	**Ans: $\times 4 + 8$** •[1]•[2] generalise pattern	•[1]•[2] $\times 4 + 8$ or equivalent 2R marks

NOTES:

1. Accept "bad form" eg size + size + size + size + 8
2. Do not accept eg "it goes up in fours" or "add on four for each pattern"
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 12, 16, 19, 23, 27, 31……47 in part (a) followed by $\times 4 + 7$ in part (b) award 1/2 in part (b).

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
6 (a)	**Ans: 73** $\bullet^1$ state mode	$\bullet^1$ 73 1K mark
(b)	**Ans: 72** $\bullet^1\bullet^2$ know how to find mean $\bullet^3$ add correctly $\bullet^4$ divide correctly	$\bullet^1\bullet^2$ $(58 + 64 + 66 + 67 + 70 + 73 + 73 + 74 + 83 + 92) \div 10$ $\bullet^3$ 720 $\bullet^4$ 72 4K marks

NOTES:

1. For an answer of $637 \cdot 2$ $(58 + 64 + 66 + 67 + 70 + 73 + 73 + 74 + 83 + 92 \div 10)$ with or without working award 3/4.
2. For an answer of 71·5 (median) award 1/4 with or without working.
3. For an answer of 720 award 1/4 with or without working.
4. Where the candidate adds less than 10 numbers, 3/4 may be awarded for a correct division either by 10 or the number of weights added, provided the number of weights added ≥ 8.
5. If the answer to part (b), 72, is given in part (a) with working, award 0/1 for part (a) and 3/4 for part (b).

7	**Ans: 6·4 square centimetres** $\bullet^1\bullet^2$ know how to find area of right-angled triangle $\bullet^3$ carry out calculations correctly (must involve $\frac{1}{2}$ product of at least two numbers)	$\bullet^1\bullet^2$ $\frac{1}{2}$ of $4 \times 3 \cdot 2$ (award 1 for $\frac{1}{2}bh$ or $4 \times 3 \cdot 2$) $\bullet^3$ $6 \cdot 4$ 3K marks

NOTES:

1. 12·8 $(4 \times 3 \cdot 2)$ award 1/3 with or without working

<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>8 (a)</td><td>Ans: 125ml.
•1 know to divide 750 by 6
•2 divide correctly</td><td>•1 $750 \div 6$
•2 125ml.
2K marks</td></tr>
<tr><td>(b)</td><td>Ans: 4 bottles
•1 know how to find number of bottles
•2 carry out calculations correctly (must include a multiplication and division)</td><td>•1 $12 \times 2 \div 6$ or equivalent
•2 4 bottles
2R marks</td></tr>
<tr><td colspan="3">NOTES:</td></tr>
<tr><td>9</td><td>Ans:
<table><tr><th>First dart</th><th>Second dart</th></tr><tr><td>3</td><td>double 8</td></tr><tr><td>5</td><td>double 7</td></tr><tr><td>9</td><td>double 5</td></tr><tr><td>11</td><td>double 4</td></tr><tr><td>13</td><td>double 3</td></tr><tr><td>15</td><td>double 2</td></tr><tr><td>17</td><td>double 1</td></tr></table>•1 find one possibility
•2 find more possibilities
•3 find more possibilities</td><td>•1 one other row correct
•2 another two correct rows
•3 another two correct rows</td></tr>
<tr><td colspan="3">NOTES:</td></tr>
</table>

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
10	**Ans: £306** or equivalent (must be •[1] know how to find discount •[2] find 15% of £360 •[3] know to subtract <u>discount</u> from £360 •[4] subtract correctly	•[1] $\frac{15}{100} \times 360$ evidence of × 15 <u>and</u> ÷ 100) •[2] £54 •[3] £360 − £54 •[4] £306 4K marks

NOTES:

1. 345 (360 – 15) award 1/4 with or without working
2. The third mark can only be awarded where the discount is the result of an attempt to work out a percentage.

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
11 (a)	**Ans: £436** •[1] know how to find cost •[2] carry out calculations in correct order •[3] multiply and add correctly	•[1] $70 + 24 \times 15{\cdot}25$ •[2] $24 \times 15{\cdot}25 + 70$ •[3] £436
NOTES: 1. £1433·5(0) ([70 + 24] × 15·25) award 2/3 with or without working 2. £366 (24 × 15·25) award 1/3 with or without working		
11 (b)	**Ans: £36 · 01** •[1] know to subtract £399 · 99 from (a) •[2] subtract correctly (must involve pence)	•[1] £436 – £399 · 99 •[2] £36 · 01
NOTES:		

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
12 (a)	**Ans: 10 centimetres** •[1] state breadth	•[1] 10 1K mark
(b)	**Ans: 18 centimetres** •[1] start to find length •[2] continue process •[3] carry out calculations correctly (must involve a subtraction)	•[1] $5\times2\times2$ or 5-2 or 2×5-2 •[2] $5\times2\times2$-2 or $2\times(5+3)+2$ or $2\times8+2$ •[3] 18 cm 3R marks

NOTES:

1.	16	(2×8)	award 2/3	with or without working
2.	20	$(5\times2\times2)$	award 1/3	with or without working
3.	3	(5-2)	award 1/3	with or without working
4.	8	$(2\times5$-2)	award 1/3	with or without working
5.	If the answers are reversed: ie (a) 18 (b) 10		award 0/1 for (a) award 3/3 for (b)	with or without working.

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
13 (a)	**Ans: 14 centimetres** •[1] correctly calculate **length** of photograph	•[1] 14 cm 1R mark
(b)	**Ans: 48 centimetres** •[1] know to calculate breadth of photograph •[2] know how to calculate perimeter of photograph •[3] all calculations correct	•[1] 10 cm •[2] $(14+14+10+10)$cm •[3] 48 cm 3R marks

NOTES:

1. 10 award 1/3 with or without working
2. 88 $(2\times24+2\times20)$ award 1/3 with or without working
3. Candidates who calculate the area of the photograph can only gain the 1st mark
4. Candidates who treat the photograph as a square:
   56 (4×14) award 1/3 with working
   40 (4×10) award 1/3 with working
5. Special cases

   Where the answer to part (a) is 19 (24-5):
   If the answer to part (b) is
   68 $(2\times19+2\times15)$ award 3/3 with or without working
   15 (20-5) award 1/3 with or without working

   Where the answer to part (a) is 15 (20-5):
   If the answer to part (b) is
   68 award 3/3 with or without working
   19 award 1/3 with or without working

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
14	**Ans: 9 centimetres**	
	$\bullet^1$ know how to find volume of original cuboid	$\bullet^1$ $8 \times 3 \times 3$
	$\bullet^2$ calculate volume correctly	$\bullet^2$ 72
	$\bullet^3$ know how to find height of new cuboid	$\bullet^3$ $72 \div 8$
	$\bullet^4$ calculate height correctly	$\bullet^4$ 9 cm

NOTES:

1. For a final answer of 9, **always** award 4/4.
2. 72 award 2/4 with or without working

KU 27 marks
RE 29 marks

[END OF PAPER 2 MARKING INSTRUCTIONS]

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