SCOTTISH QUALIFICATIONS AUTHORITY

2006 Mathematics

Standard Grade Credit

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 – Credit 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	**Ans: 6 · 4** • knowing correct order of operations • carrying out both calculations	• 50 • 6 · 4 2 KU
Notes: (i) For an answer of 6·4 without working award 2/2 (ii) For an answer of 2206 without working award 1/2 (iii) For an answer of 50 without working award 1/2 (iv) For any other answer without working award 0/2		

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
2	**Ans:** $\mathbf{4\frac{6}{35}}$ **or** $\mathbf{\frac{146}{35}}$ • finding a fraction with a common denominator • carrying out all calculations	• $\frac{41}{35}$ or $\frac{56}{35}$ or $\frac{90}{35}$ • $\frac{146}{35}$ or equivalent 2 KU
Notes: (i) For an answer of $3\frac{41}{35}$ award 1/2		

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
3	**Ans: -5** • substitution • correct evaluation	 • $4-(-3)^2$ • -5 2 KU
Notes: (i) For a correct answer of -5 without working award 2/2 (ii) For an answer of 13 without working award 1/2		

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
4	**Ans:** $y = \frac{2}{3}x + 8$ • gradient • y–intercept • correct equation	• $\frac{2}{3}$ (or equivalent) • 8 • $y = \frac{2}{3}x + 8$ 3 KU

Notes:

(i) For a correct equation without working award 3/3.

(ii) To gain the third mark, the equation must be consistent with the gradient and the y–intercept calculated.

(iii) For an answer of $y = \frac{2}{3}x$ award 1/3 unless the y–intercept has been explicitly marked as zero in which case award 2/3.

(iv) An answer of $y = \frac{2}{3}x + c$ cannot be awarded the third mark.

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
5 (a)	**Ans:** $(2x - y)(2x + y)$ • factorising	• $(2x - y)(2x + y)$ 1 KU
Notes:		
(b)	**Ans:** $\frac{2x - y}{3}$ • factorising denominator • consistent simplification	• $3(2x + y)$ • $\frac{2x - y}{3}$ 2 KU
Notes: (i) The second mark can be awarded only if simplification is consistent with part (a).		

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
6	**Ans: -10** • expanding brackets • collecting terms • consistent solution	 • $-2x-2$ • $-x=10$ • $x=-10$ 3 KU

Notes:

(i) The second mark **cannot** be awarded if the collection of terms involves only constants.

(ii) The third mark can be awarded only if the candidate has correctly dealt with a negative coefficient of x.

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
7	**Ans: 540 ml** • linear scale factor • volume scale factor • method • solution	• $\frac{3}{2}$ or $\frac{21}{14}$ • $\frac{27}{8}$ or $\left(\frac{3}{2}\right)^3$ • $\frac{27}{8}\times 160$ • 540 4 KU

Notes:

(i) For candidates who use a 'linear' scale factor, marks 2 and 4 are **not** available.

(ii) For candidates who use an 'area' scale factor, mark 2 is **not** available.

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
8	**Ans:** $y = (x-1)^2 - 4$ • horizontal displacement • vertical displacement	• $(x-1)^2$ • - 4 2 RE
Notes:		

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
9 (a)	**Ans: $x + y = 20$** • equation	• $x + y = 20$ 1 KU
Notes:		
(b)	**Ans: $5x + 2y = 79$** • terms • equation	• $5x$ and $2y$ • $5x + 2y = 79$ 2 RE
Notes:		
(c)	**Ans: 13** • evidence of scaling • eliminating • solution	• $2x + 2y = 40$ or $5x + 5y = 100$ • $x = 13$ or $y = 7$ • $x = 13$ 3 RE
Notes: (i) For 13 without working award 0/3. (ii) For 13 verified in **both** equations award 1/3.		

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
10 (a)	**Ans: $150\ m^2$** • calculation	• 150 1 KU
Notes:		
(b)	**Ans: 12 m** • equating expressions • consistent substitution • consistent solution	• $\frac{1}{2} \times AC \times BD = 150$ • $\frac{1}{2} \times 25 \times BD = 150$ • 12 3 RE
Notes:		

Question No	Give 1 mark for each	Illustrations of evidence for awarding each mark
11 (a)	**Ans: $3x$** • expression	• $3x$ 1 RE
Notes:		
(b)(i)	**Ans: £38** • evaluation	• 38 1 KU
(ii)	**Ans: $2x + 8$ (or $20 + 2(x - 6)$)** • starting expression • expression	• $(x - 6)$ • $20 + 2(x - 6)$ 2 RE
Notes:		
(c)	**Ans: 9** • inequality • solving inequality • solution	• $2x + 8 < 3x$ • $x > 8$ • 9
	• Trial and check method:	• using at **least** 3 trials • two trials must be for 8 and 9 • explicit statement of solution 3 RE
Notes: (i) An answer of 9 without working is awarded 0/3		

KU 22 marks
RE 16 marks

[END OF PAPER 1 MARKING INSTRUCTIONS]