2008 Mathematics

Standard Grade General

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.

Mathematics Standard Grade − General Level 2008 – 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: 14.17** •[1] Correct addition and subtraction	•[1] 14.17 **1K**
(b)	**Ans: 57.51** •[1] Correctly multiply 6·39 by 9	•[1] 57.51 **1K**
(c)	**Ans: 0.0437** •[1] Correctly divide 8·74 by 200	•[1] 0.0437 **1K**
(d)	**Ans: 350** •[1] Correctly divide by 6 •[2] Correctly multiply by 5	•[1] 70 •[2] 350 **2K**

Note:

In part (d)

Final Answers	with working	without working
350	2/2	2/2
70	1/2	1/2
2100	1/2	1/2
504 (420 ÷ 5 × 6)	1/2	1/2

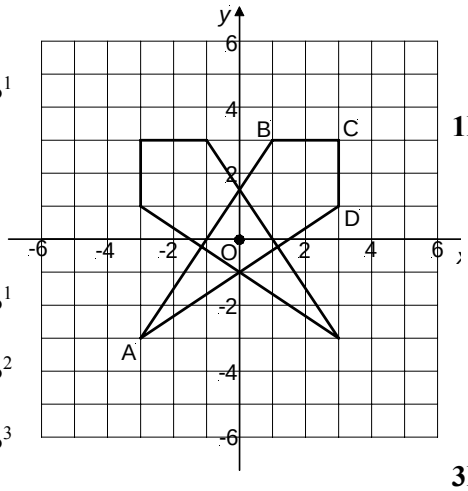
Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
2	**Ans: 4 500 000** •[1] Evidence of selecting 30% •[2] Finds 10% of 15 000 000 or equivalent •[3] Correct multiplication of above answer by 3 or equivalent	•[1] 30% of 15 000 000 •[2] 1 500 000 •[3] 4 500 000 **3K**

Note:

(i) Evidence of 30% may include e.g. ÷ 10 followed by ÷ 3

(ii)

Final Answers	**with working**	**without working**
4 500 000	3/3	2/3
500 000 (÷ 10 ÷ 3)	2/3	0/3

3 (a)	**Ans: Correct point (3, 1)** •[1] Point D plotted correctly	•[1] **1R**
(b)	**Ans: Correct diagram ((3, -3); (-1, 3); (-3, 3); (-3, 1))** •[1] One point correct •[2] A further point correct •[3] Two further points correct	 •[1] •[2] •[3] **3R**

Notes:

(i) For a correct reflection in a line other than the *y*-axis – award 2/3

(ii) When candidates draw the reflection in the space below part (b), treat as bad form and mark accordingly

<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>4</td><td>Ans: 1.04×10^7
•1 Correct positioning of decimal point
•2 Correct power of ten within a valid expression</td><td>•1 1.04
•2 1.04×10^7
2K</td></tr>
<tr><td colspan="3">Notes:
(i) The second mark can be awarded for a consistent power of ten e.g. $10{\cdot}4 \times 10^6$
(ii) Final Answer 1.04×10^7 with working 2/2 without working 2/2</td></tr>
<tr><td>5 (a)</td><td>Ans: 1238, 1247, 1256, 2345
•1 One combination correct
•2 A further combination correct
•3 Two further combinations correct</td><td>•1
•2
•3
<table><tr><td>1</td><td>3</td><td>4</td><td>6</td></tr><tr><td>1</td><td>2</td><td>3</td><td>8</td></tr><tr><td>1</td><td>2</td><td>4</td><td>7</td></tr><tr><td>1</td><td>2</td><td>5</td><td>6</td></tr><tr><td>2</td><td>3</td><td>4</td><td>5</td></tr></table>3R</td></tr>
<tr><td>(b)</td><td>Ans: 2345
•1 Correct combination</td><td>•1 2345
1K</td></tr>
<tr><td colspan="3">Note:
In part (a)
Where the table has been completed by following only two of the clues – award 1/3</td></tr>
</table>

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
6	**Ans: –9, –8, 7** •[1] One correct number within an addition trial •[2] Two correct numbers within an addition trial •[3] Third correct number and addition to –10	•[1] e.g. –8 + 12 •[2] e.g. –8 + –9 or –8 – 9 •[3] –8 + –9 + 7 = –10 **3R**
Note:	**Final Answer** –9, –8, 7 **with working** 3/3 **without working** 1/3	
7	**Ans: (£)1.22** •[1] Finds cost of letter •[2] Finds cost of large letter •[3] Correct total	•[1] 24p •[2] 98p •[3] (£)1·22 **3K**
Note:	**Final Answer** (£)1.22 **with working** 3/3 **without working** 2/3	

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
8 (a)	**Ans:** $\frac{2}{3}$ $\bullet^1$ Correctly finds probability (girl)	$\bullet^1$ $\frac{2}{3}$ or equivalent **1K**
(b)	**Ans:** $\frac{2}{5}$ $\bullet^1$ Correct denominator $\bullet^2$ Correct numerator in a probability statement	$\bullet^1$ 5 $\bullet^2$ $\frac{2}{5}$ **2R**

Notes:

In parts (a) and (b)

(i) Accept variations in language e.g. 2:3; 2 out of 3; 2 to 3

In part (b)

(i) For a final answer of $\frac{2}{5}$ without working – award 2/2

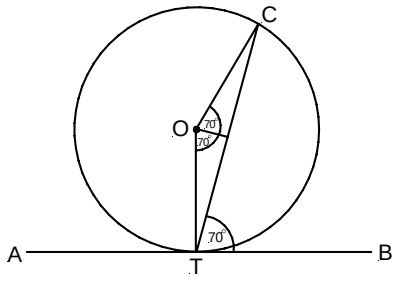
(ii) For an answer of 2:3 (following an incorrect 4:2 in part (a)) – award 2/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
9	**Ans: 220(º)** •[1] Finds angle CTO •[2] Finds angle TOC (obtuse) •[3] Finds angle TOC (reflex)	•[1] 90 – 70 = 20 •[2] 180 – (2 × 20) = 140 •[3] 360 – 140 = 220(º) **3R**

Notes:

(i) **Alternative solution**

•[1]	Angle TOC bisected	•[1]	70 + 70
•[2]	Finds angle TOC (obtuse)	•[2]	140
•[3]	Finds angle TOC (reflex)	•[2]	360 – 140 = 220(º)



(ii)

Final Answers	with working	without working
220(°)	3/3	2/3
140(°)	2/3	1/3

KU 15 marks
RE 15 marks

[END OF PAPER 1 MARKING INSTRUCTIONS]

Mathematics Standard Grade − General Level 2008 – 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: (£)102.55** •[1] Finds basic pay •[2] Finds extra pay •[3] Finds total pay	•[1] 15 × 6.25 = 93.75 •[2] 40 × 0.22 = 8.80 or equivalent •[3] 93.75 + 8.80 = (£)102.55 **3K**
Note:	**Final Answer** (£)102.55 — **with working** 3/3 — **without working** 2/3	
2	**Ans: 3(h) 30(mins)** •[1] Use correct formula •[2] Correct substitution •[3] Correct calculation •[4] Correct time conversion	•[1] T = D/S •[2] T = 157.5/45 •[3] 3.5 •[4] 3(h) 30(mins) **4K**
Note:	**Final Answers** — **with working** — **without working** 3(h) 30(mins) — 4/4 — 3/4 0.29 — 2/4 — 0/4 17.14 — 2/4 — 0/4	

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
3 (a)	**Ans: 3.575 (kg)** •[1] Finds mass of 1 loaf •[2] Finds correct mass in kg of 13 loaves	•[1] 550 ÷ 2 = 275 •[2] 275 × 13 ÷ 1000 = 3·575 (kg) **2K**
(b)	**Ans: 3** •[1] Correctly rounds for number of bags	•[1] 3.575 / 1.5 = 2·38 = 3 **1R**

Notes:

In part (a)

(i) **Alternative solution**

•[1] Finds correct multiplier — •[1] 13/2 = 6.5

•[2] Finds correct value in kg — •[2] (6.5 × 550) / 1000 = 3.575 (kg)

(ii)

Final Answers	with working	without working
3.575 (kg)	2/2	2/2
3 kg 575 g	2/2	2/2
3.58 (kg)	2/2	2/2
3.6 (kg)	2/2	2/2
4 (kg)	2/2	0/2
3575 (g)	1/2	1/2
7.15 (kg)	1/2	1/2

In part (b)

The answer must be given as a whole number

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
4 (a)	**Ans: 10, 13, 46** $\bullet^1$ Two entries correct $\bullet^2$ A further entry correct	$\bullet^1$ e.g. 10, 13 $\bullet^2$ e.g. 46 **2R**
(b)	**Ans: $b = 3m + 1$** $\bullet^1$&$\bullet^2$ Correct formula	$\bullet^1$&$\bullet^2$ $b = 3m + 1$ **2R**
(c)	**Ans: 25** $\bullet^1$ Correct strategy to find b $\bullet^2$ Correct solution	$\bullet^1$ $3m + 1 = 76$ $\bullet^2$ 25 **2R**

Notes:

In part (b)

(i) For an answer of (=) $3m + 1$ – award 1/2
(ii) Do not penalise bad form e.g. $b = 4m – (m – 1)$
(iii) A formula in words is not acceptable
(iv) For $m = 3b + 1$ – award 0/2

In part (c)

(i) Solution may be obtained by extending the table
(ii) For a final answer of 25 without working – award 2/2
(iii) For $76 \div 3 = 25(.3)$ – award 1/2
(iv) For $76 \times 3 + 1 = 229$ – award 0/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
5	**Ans: 17 (cm)**	
	$\bullet^1$ Knows to find length of short side	$\bullet^1$ $26 - 18 = 8$
	$\bullet^2$ Substituting correctly into Pythagoras theorem	$\bullet^2$ $PS^2 = 8^2 + 15^2$
	$\bullet^3$ Knowing to find the square root of above	$\bullet^3$ $PS = \sqrt{289}$
	$\bullet^4$ All calculations correct within a valid strategy	$\bullet^4$ PS = 17 (cm) **4R**

Note:

Final Answers	with working	without working
17	4/4	2/4
30(.01) $(26^2 + 15^2)$	3/4	0/4
23.4 $(18^2 + 15^2)$	3/4	0/4
31.6 $(26^2 + 18^2)$	1/4	0/4
289	2/4	1/4

6	**Ans: 40 (%)**	
	$\bullet^1$ Calculates profit	$\bullet^1$ $133 - 95 = 38$
	$\bullet^2$ Knows to divide by 95	$\bullet^2$ 38/95
	$\bullet^3$ Correct % calculation	$\bullet^3$ 40 (%) **3K**

Notes:

(i) **Alternative solution**

$\bullet^1$	Correct fraction	$\bullet^1$ 133/95
$\bullet^2$	Correct % calculation	$\bullet^2$ 140% or equivalent
$\bullet^3$	Correct % profit	$\bullet^2$ 40 (%)

(ii)

Final Answers	with working	without working
40 (%)	3/3	2/3
28.6 (%)	2/3	0/3
71.4 (%)	1/3	0/3

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
7	**Ans: Correct diagram** •[1] One line drawn correctly (± 2mm) •[2] 110° & 75° angles correct (± 2º) •[3] Other two given sides drawn correctly (± 2mm) & shape completed	•[1] •[2] •[3] **3R**
8 (a)	**Ans: $t = 8$** •[1] t terms gathered •[2] Number terms gathered •[3] Correct solution	•[1] $6t$ •[2] 48 •[3] $t = 8$ **3K**
(b)	**Ans: $4(5x - 3y)$** •[1] Finds one correct factor •[2] Completes factorisation	•[1] 4 or $5x - 3y$ •[2] $4(5x - 3y)$ **2K**

Notes:

(i) In part (a) for $t = 8$ without algebraic working – award 0/3

(ii) In part (b) for $2(10x – 6y)$ – award 1/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
9	**Ans: 7.326 (m)**	
	•[1] Finds diameter	•[1] 1.8
	•[2] Attempts to calculate length of curved edge (using diameter or radius)	•[2] $0.5 \times 3.14 \times 1.8$
	•[3] Knows to add 2 straight edges	•[3] $2.25 + 2.25$
	•[4] All calculations correct (must involve π)	•[4] $2.826 + 4.5 = 7.326$ (m) **4R**

Notes:

(i)

Final Answers	**with working**	**without working**
7.326	4/4	2/4
$10.2(\pi d)$	3/4	0/4
$5.9\ (\frac{1}{2}\pi r)$	3/4	0/4
$5.77\ (\frac{1}{2}\pi r^2)$	3/4	0/4
$7.04\ (\pi r^2)$	2/4	0/4

(ii) Candidates who attempt to calculate the area of a semi-circle may be awarded the 2nd mark

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
10	**Ans: Completed table, 3.1 (h)** •[1] Finds (P. time × freq) values •[2] Finds total •[3] Calculates mean	•[1] 28, 44, 30, 60, 55, 30, 63 •[2] 310 •[3] 3.1 (h) **3K**
11	**Ans: 77** •[1] Finds diameter of circle •[2] Knows to add gap to diameter •[3] Knows to divide 700 by above •[4] Correct solution & interpretation of decimal answer	•[1] 8 •[2] 8 + 1 = 9 •[3] 700/9 (= 77.7) •[4] 77 **4R**

Notes:

(i) **Alternative solution**

•[1]	Finds diameter of circle	•[1] 8
•[2]	Knows to add gap to diameter	•[2] 8 + 1 = 9
•[3]	Divides 7m by (4 × 9) or equivalent	•[3] 700 ÷ (4 × 9) = 19.4 (19 × 36 = 684cm)
•[4]	Correct solution	•[4] 19 × 4 + 1 = 77

(ii)

Final Answers	**with working**	**without working**
77	4/4	3/4
78 (incorrect interpretation)	3/4	2/4
77.7 or 77.6	3/4	2/4
87 (from 700 ÷ 8)	3/4	0/4
140 (700 ÷ 5)	2/4	0/4
175 (700 ÷ 4)	1/4	0/4

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
12	**Ans: 24.4(º)** •[1] Valid trig ratio •[2] Correct value for sin$x$ or equivalent •[3] Correct angle	•[1] sin$x$ = 45/109 •[2] sin$x$ = 0.413 or $x = \sin^{-1}\left(45/109\right)$ •[3] x = 24.4(º) **3K**

Note:

Final Answers	with working	without working
24.4	3/3	2/3
0·425 [RAD]	3/3	2/3
27·1 [GRAD]	3/3	2/3

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
13 (a)	**Ans: 399 000 (cm^3)** •[1] Correct use of formula •[2] Correct calculation	•[1] V = 70 × 95 × 60 •[2] V = 399 000 (cm^3) **2K**
(b)	**Ans: 131.9 (cm)** •[1] Knows to find area of base •[2] Knows to divide volume by above •[3] Calculations correct	•[1] 55 × 55 (= 3025) •[2] 399 000/3025 •[3] 131.9 (cm) **3R**

Notes:

In part (a)

(i) 2nd mark can be awarded to candidates who correctly multiply at least two of the given dimensions

In part (b)

Final Answers	with working	without working
131.9	3/3	2/3
76.36 (÷ (55 × 95))	2/3	0/3
103.6 (÷ (55 × 70))	2/3	0/3
120.9 (÷ (55 × 60))	2/3	0/3
7254.5 (÷ 55)	2/3	0/3
4200 (÷ 95)	1/3	0/3
5700 (÷ 70)	1/3	0/3
6650 (÷ 60)	1/3	0/3

KU 25 marks
RE 25 marks

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

[END OF MARKING INSTRUCTIONS]