



2007 Mathematics

Standard Grade General

Finalised Marking Instructions

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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 $\sin x^0 = 0.5 = 30^0$.

- 13 A transcription error is not normally penalised except where the question has been simplified as a result.

Mathematics Standard Grade – General Level 2007 – 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: 2·438 • ¹ Correct subtraction	• ¹ 2·438 1K
1 (b)	Ans: 261·2 • ¹ Correct multiplication	• ¹ 261·2 1K
1 (c)	Ans: 46·5 • ¹ Correct division	• ¹ 46·5 1K
1 (d)	Ans: 21$\frac{2}{3}$ • ¹ Correctly multiplying by 5 • ² Correct addition	• ¹ 20 and $\frac{5}{3}$ • ² 21 $\frac{2}{3}$ 2K

Notes:

In part (d)

(i) The maximum mark that can be awarded when the fraction is rounded to a decimal is 1/2

(ii) **Alternative strategy**

• ¹	Conversion to improper fraction	• ¹	$\frac{13}{3}$
• ²	Correct multiplication by 5	• ²	$\frac{65}{3}$

(iii)	Final answers	with working	without working
	21 $\frac{2}{3}$	2/2	2/2
	$\frac{65}{3}$	2/2	2/2
	20 $\frac{5}{3}$	1/2	1/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
2	Ans: 0·00023 (s) <ul style="list-style-type: none"> •¹ Evidence of use of a negative power •² Correct answer 	<ul style="list-style-type: none"> •¹ 0·...23 •² 0·00023 (s) <p style="text-align: right;">2K</p>

Note:

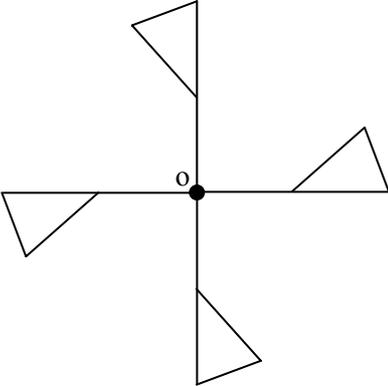
Final answers	with working	without working
0·00023	2/2	2/2
23 000	1/2	1/2

3	Ans: <table border="1"> <thead> <tr> <th>Weights</th> <th>Dance</th> <th>Running</th> <th>Cycling</th> <th>Swimming</th> <th>Total Time</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>✓</td> <td>✓</td> <td>✓</td> <td>95</td> </tr> <tr> <td></td> <td>✓</td> <td>✓</td> <td></td> <td>✓</td> <td>105</td> </tr> <tr> <td></td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td>90</td> </tr> <tr> <td>✓</td> <td>✓</td> <td></td> <td></td> <td>✓</td> <td>100</td> </tr> <tr> <td>✓</td> <td></td> <td></td> <td>✓</td> <td>✓</td> <td>90</td> </tr> <tr> <td></td> <td>✓</td> <td></td> <td>✓</td> <td>✓</td> <td>115</td> </tr> </tbody> </table>	Weights	Dance	Running	Cycling	Swimming	Total Time			✓	✓	✓	95		✓	✓		✓	105		✓	✓	✓		90	✓	✓			✓	100	✓			✓	✓	90		✓		✓	✓	115
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	✓		✓	✓	115																																						

	<ul style="list-style-type: none"> •¹ two combinations (excluding times) correct •² a further two combinations (excluding times) correct •³ one further combination correct and all times correct <p style="text-align: right;">3R</p>
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Note:

Candidates who choose more than three exercises can be awarded a maximum of 2 marks (1st mark cannot be awarded)

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •															
4	<p>Ans:</p>  <p>•¹ 90° rotation •² One correct rotation •³ Two further correct rotations</p>	<p>•¹ Evidence •² Evidence •³ Evidence</p> <p style="text-align: right;">3R</p>															
5	<p>Ans: 34(°)</p> <p>•¹ Subtract -11 from 23 or equivalent •² Correct difference calculation</p>	<p>•¹ 23 - (-11) or 23 + 11 •² 34 (°)</p> <p style="text-align: right;">2K</p>															
<p>Notes:</p> <p>(i) <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 33%;">Final answers</th> <th style="text-align: center; width: 33%;">with working</th> <th style="text-align: center; width: 33%;">without working</th> </tr> </thead> <tbody> <tr> <td>34 (°)</td> <td style="text-align: center;">2/2</td> <td style="text-align: center;">2/2</td> </tr> <tr> <td>-34 (°)</td> <td style="text-align: center;">1/2</td> <td style="text-align: center;">0/2</td> </tr> <tr> <td>12 (°)</td> <td style="text-align: center;">1/2</td> <td style="text-align: center;">0/2</td> </tr> <tr> <td>-12 (°)</td> <td style="text-align: center;">0/2</td> <td style="text-align: center;">0/2</td> </tr> </tbody> </table></p> <p>(ii) The use of a number line from -11 to 23 is acceptable for the 1st mark</p>			Final answers	with working	without working	34 (°)	2/2	2/2	-34 (°)	1/2	0/2	12 (°)	1/2	0/2	-12 (°)	0/2	0/2
Final answers	with working	without working															
34 (°)	2/2	2/2															
-34 (°)	1/2	0/2															
12 (°)	1/2	0/2															
-12 (°)	0/2	0/2															

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •												
<p>6 (a)</p> <p>Ans:</p> <table border="1" data-bbox="517 322 884 394"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>12</td> </tr> <tr> <td>6</td> <td>11</td> <td>16</td> <td>21</td> <td>26</td> <td>61</td> </tr> </table> <p>•¹ Any 2 correct lengths of wood</p> <p>•² 2 further correct lengths of wood</p> <p>(b)</p> <p>Ans: $w = 5s + 1$</p> <p>•¹&•² Correct formula</p> <p>(c)</p> <p>Ans: $s = 16$</p> <p>•¹ Correct strategy to find s</p> <p>•² Correct solution</p>	1	2	3	4	5	12	6	11	16	21	26	61		<p>•¹ Any 2 from 16, 21, 26, 61</p> <p>•² Remaining 2 from 16, 21, 26, 61</p> <p style="text-align: right;">2R</p> <p>•¹&•² $w = 5s + 1$</p> <p style="text-align: right;">2R</p> <p>•¹ $81 = 5s + 1$</p> <p>•² $s = 16$</p> <p style="text-align: right;">2R</p>
1	2	3	4	5	12									
6	11	16	21	26	61									

Notes:

In part (b)

- (i) For an answer of (=) $5s + 1$ – award 1/2
- (ii) Do not penalise bad form eg $w = 6s - (s - 1)$
- (iii) A formula in words is not acceptable
- (iv) For $s = 5w + 1$ – award 0/2

In part (c)

- (i) Solution may be obtained by extending the table
- (ii) For a final answer of 16 without working – award 0/2
- (iii) For $81 \div 5 = 16(\cdot 2)$ – award 1/2

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
7	(a) Ans: All 8 points plotted correctly	
	• ¹ 3 points correct	• ¹
	• ² A further 5 points correct	• ²
(b) Ans: Best-fitting line drawn		2K
• ¹ A best-fitting line drawn	• ¹	1K
(c) Ans: Answer read from line (± 2)		
• ¹ Answer read from line	• ¹ Answer read from line (± 2)	1R

Notes:

- (i) For each point a tolerance of $\pm 2\text{mm}$ may be applied
- (ii) For candidates who attempt to plot 16 points – award 0/2
- (iii) Most lines of best-fit will have a minimum of 2 points above and 2 points below the line
- (iv) The line of best-fit must extend at least from point A to point H

8	Ans: (£)61.75	
	• ¹ For knowing to find 5% of £65	• ¹ 5% of 65 = 3.25
	• ² For knowing to subtract	• ² Cost = 65 – 3.25
• ³ All calculations correct within a valid strategy (must involve a percentage calculation and a subtraction)	• ³ = (£) 61.75	3R

Note:

Final answers	with working	without working
(£)61.75	3/3	2/3
(£)52 (65 – 65 ÷ 5)	1/3	0/3

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
9 (a)	Ans: $\frac{3}{25}$ • ¹ Probability identified	• ¹ $\frac{3}{25}$ 1K
(b)	Ans: $\frac{7}{24}$ • ¹ No. of boxes remaining • ² Correct numerator in a probability statement	• ¹ $25 - 1 = 24$ • ² $\frac{7}{24}$ 2R
Notes: In part (a) (i) Accept variations in language eg 3:25; 3 out of 25; 3 to 25 In part (b) (i) For a final answer of $\frac{7}{24}$ without working – award 2/2 (ii) Accept variations in language eg 7:24; 7 out of 24; 7 to 24		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
10	Ans: 320 • ¹ For knowing to divide 720 by 9 • ² For knowing to multiply answer to above by 4 • ³ All calculations correct within a valid strategy	• ¹ $720 \div 9$ • ² 80×4 • ³ 320 <div style="text-align: right;">3R</div>

Notes:

(i) **Alternative strategy**

- | | |
|---|----------------------------|
| • ¹ For knowing to scale up, 1 st step | • ¹ eg 10 : 8 |
| • ² For knowing to continue to scale up | • ² eg 100 : 80 |
| • ³ All calculations correct within a valid strategy | • ³ (400 :) 320 |

(ii) Final answers	with working	without working
320	3/3	2/3
400 : 320	3/3	2/3

- (iv) For an incorrect calculation of the no. of boys followed by a correct subtraction from 720 – award 1/3

KU 13 marks
RE 21 marks

[END OF PAPER 1 MARKING INSTRUCTIONS]

Mathematics Standard Grade – General Level 2007 – 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: 180 (km) • ¹ Use of correct formula • ² Correct calculation	• ¹ $D = 144 \times 1.25$ • ² $= 180 \text{ (km)}$ 2K															
Note: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Final answers</th> <th style="text-align: center;">with working</th> <th style="text-align: center;">without working</th> </tr> </thead> <tbody> <tr> <td>180 (km)</td> <td style="text-align: center;">2/2</td> <td style="text-align: center;">2/2</td> </tr> <tr> <td>10800 (144×75)</td> <td style="text-align: center;">1/2</td> <td style="text-align: center;">0/2</td> </tr> <tr> <td>165.6 (144×1.15)</td> <td style="text-align: center;">1/2</td> <td style="text-align: center;">0/2</td> </tr> <tr> <td>115.2 ($144 \div 1.25$)</td> <td style="text-align: center;">1/2</td> <td style="text-align: center;">0/2</td> </tr> </tbody> </table>			Final answers	with working	without working	180 (km)	2/2	2/2	10800 (144×75)	1/2	0/2	165.6 (144×1.15)	1/2	0/2	115.2 ($144 \div 1.25$)	1/2	0/2
Final answers	with working	without working															
180 (km)	2/2	2/2															
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165.6 (144×1.15)	1/2	0/2															
115.2 ($144 \div 1.25$)	1/2	0/2															
2	Ans: (£) 4725 • ¹ Find the cost of bricks • ² Find the labour charge • ³ Correct total cost	• ¹ $7500 \times 0.23 = 1725$ • ² $15 \times 200 = 3000$ • ³ $1725 + 3000 = (\text{£})4725$ 3K															
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Final answer	with working	without working															
(£)4725	3/3	2/3															

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •															
3	<p>Ans: 3 (times per year)</p> <ul style="list-style-type: none"> •¹ Correct strategy to find cost of 4 check-ups for dogs •² Knowing to subtract answer from 105·25 •³ Knowing to divide above by £11·75 •⁴ All calculations correct (min. 3) 	<ul style="list-style-type: none"> •¹ $4 \times 17 \cdot 50$ •² $105 \cdot 25 - 70$ •³ $35 \cdot 25 \div 11 \cdot 75$ •⁴ 3 (times per year) <p style="text-align: right;">4R</p>															
<p>Notes:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 35%; text-align: center;">with working</th> <th style="width: 35%; text-align: center;">without working</th> </tr> </thead> <tbody> <tr> <td>(i) Final answer</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td style="text-align: center;">4/4</td> <td style="text-align: center;">2/4</td> </tr> <tr> <td>Every 4 months</td> <td style="text-align: center;">4/4</td> <td style="text-align: center;">2/4</td> </tr> <tr> <td colspan="3">(ii) An answer which has been rounded, as a result of an incorrect strategy, can still be awarded the calculation mark</td> </tr> </tbody> </table>				with working	without working	(i) Final answer			3	4/4	2/4	Every 4 months	4/4	2/4	(ii) An answer which has been rounded, as a result of an incorrect strategy, can still be awarded the calculation mark		
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3	4/4	2/4															
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(ii) An answer which has been rounded, as a result of an incorrect strategy, can still be awarded the calculation mark																	

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
4	Ans: 188 (cm) • ¹ Correct use of Pythagoras • ² Correct Pythagoras calculation • ³ Correct square root of above • ⁴ Correct rounding	• ¹ $x^2 = 80^2 + 170^2$ • ² $= 35300$ • ³ $x = 187.882\dots$ • ⁴ $= 188 \text{ (cm)}$

4K

Notes:

(i) **Alternative Strategy**

Where a trig strategy is used marks may be awarded as follows:

- ¹ Correct trig statement
- ² Correct calculation of angle (64.8° or 25.2°)
- ³ Correct calculation of length
- ⁴ Correct rounding

(ii)	Final answers	with working	without working
	188	4/4	3/4
	187.882...	3/4	2/4

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •													
5 (a)	Ans: $2x + 26$	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">•¹</td> <td>Multiply out 1st bracket</td> <td style="width: 30%;">•¹</td> <td>$6x + 14$</td> <td rowspan="3" style="text-align: right; vertical-align: middle;">3K</td> </tr> <tr> <td>•²</td> <td>Multiply out 2nd bracket</td> <td>•²</td> <td>$12 - 4x$</td> </tr> <tr> <td>•³</td> <td>Terms collected</td> <td>•³</td> <td>$2x + 26$</td> </tr> </table>	•¹	Multiply out 1st bracket	•¹	$6x + 14$	3K	•²	Multiply out 2nd bracket	•²	$12 - 4x$	•³	Terms collected	•³	$2x + 26$
	•¹		Multiply out 1st bracket	•¹	$6x + 14$	3K									
•²	Multiply out 2nd bracket	•²	$12 - 4x$												
•³	Terms collected	•³	$2x + 26$												
(b)	Ans: $a \geq 6$ <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">•¹</td> <td>Number terms gathered</td> <td style="width: 30%;">•¹</td> <td>$4a \geq 24$</td> </tr> <tr> <td>•²</td> <td>Correct solution</td> <td>•²</td> <td>$a \geq 6$</td> </tr> </table>	•¹	Number terms gathered	•¹	$4a \geq 24$	•²	Correct solution	•²	$a \geq 6$	2K					
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	with working	without working													
(i) Final answers															
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(b) $a \geq 6$	2/2	1/2													

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •																		
6	<p>Ans: 16(.06) (cm)</p> <ul style="list-style-type: none"> •¹ For valid trig statement •² For knowing to find side opposite 35° angle •³ For correct trig calculation •⁴ For correct doubling of above value 	<ul style="list-style-type: none"> •¹ $\sin 35^\circ = \text{opp}/14$ •² $\text{Opp} = 14 \times \sin 35^\circ$ •³ 8.03 •⁴ 16 (.06) (cm) <p style="text-align: right;">4R</p>																		
<p>Notes:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">(i) Final answers</th> <th style="text-align: center;">with working</th> <th style="text-align: center;">without working</th> </tr> </thead> <tbody> <tr> <td>16(.06)</td> <td style="text-align: center;">4/4</td> <td style="text-align: center;">3/4</td> </tr> <tr> <td>14.62[GRAD]</td> <td style="text-align: center;">4/4</td> <td style="text-align: center;">3/4</td> </tr> <tr> <td>(-)11.989 [RAD]</td> <td style="text-align: center;">4/4</td> <td style="text-align: center;">3/4</td> </tr> <tr> <td>8(.03)</td> <td style="text-align: center;">3/4</td> <td style="text-align: center;">2/4</td> </tr> <tr> <td>11(.47) (Cos35 × 14)</td> <td style="text-align: center;">2/4</td> <td style="text-align: center;">0/4</td> </tr> </tbody> </table> <p>(ii) Ignore variations in rounding</p>			(i) Final answers	with working	without working	16(.06)	4/4	3/4	14.62[GRAD]	4/4	3/4	(-)11.989 [RAD]	4/4	3/4	8(.03)	3/4	2/4	11(.47) (Cos35 × 14)	2/4	0/4
(i) Final answers	with working	without working																		
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Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
7 (a)	Ans: 6.28 (m) • ¹ Calculating circumference of semi-circle using $\frac{1}{2}\pi d$ • ² Correct calculation involving π	• ¹ $\frac{1}{2} \times \pi \times 4$ • ² 6.28 (m) 2K
(b)	Ans: Yes, 40 > 37.7 • ¹ Knows to find length of 6 semi-circles or equivalent • ² Yes, valid comparison with reason	• ¹ 6×6.28 • ² Yes, $40 > 37.7$ 2R
Notes: In part (a) <ul style="list-style-type: none"> (i) For a correct final answer without working – award 1/2 (ii) For a final answer of 6 without working – award 0/2 (iii) Candidates who demonstrate the use of πr^2 can only be awarded the 2nd mark In part (b) <ul style="list-style-type: none"> (i) The reason must include a comparison or an implied comparison eg using ‘only’, ‘more than’ or ‘less than’ 		

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •																					
8	Ans: (£) 220·50 • ¹ Finding 6·3% of £4200 • ² Finding interest for 1 month • ³ Finding interest for 10 months	• ¹ $0·063 \times 4200 = 264·6$ • ² $264·6 \div 12 = 22·05$ • ³ $22·05 \times 10 = (\pounds)220·50$ <div style="text-align: right;">3K</div>																					
Notes: (i) Alternative strategy <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">•¹ Finding interest rate for 1 month</td> <td style="width: 50%;">•¹ $6·3 \div 12 = 0·525$</td> </tr> <tr> <td>•² Finding interest rate for 10 months</td> <td>•² $0·525 \times 10 = 5·25$</td> </tr> <tr> <td>•³ Finding 5·25% of £4200</td> <td>•³ $0·0525 \times 4200 = (\pounds)220·50$</td> </tr> </table> (ii) Final answers <table style="width: 100%; border: none;"> <thead> <tr> <th style="width: 33%;"></th> <th style="width: 33%; text-align: center;">with working</th> <th style="width: 33%; text-align: center;">without working</th> </tr> </thead> <tbody> <tr> <td>(£)220·50</td> <td style="text-align: center;">3/3</td> <td style="text-align: center;">2/3</td> </tr> <tr> <td>(£)22·05 ($\times 6·3\% \div 12$)</td> <td style="text-align: center;">2/3</td> <td style="text-align: center;">1/3</td> </tr> <tr> <td>5·25(%)</td> <td style="text-align: center;">2/3</td> <td style="text-align: center;">1/3</td> </tr> <tr> <td>(£)2646 ($\times 6·3\% \times 10$)</td> <td style="text-align: center;">2/3</td> <td style="text-align: center;">0/3</td> </tr> </tbody> </table>			• ¹ Finding interest rate for 1 month	• ¹ $6·3 \div 12 = 0·525$	• ² Finding interest rate for 10 months	• ² $0·525 \times 10 = 5·25$	• ³ Finding 5·25% of £4200	• ³ $0·0525 \times 4200 = (\pounds)220·50$		with working	without working	(£)220·50	3/3	2/3	(£)22·05 ($\times 6·3\% \div 12$)	2/3	1/3	5·25(%)	2/3	1/3	(£)2646 ($\times 6·3\% \times 10$)	2/3	0/3
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Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
9	Ans: 86° • ¹ For knowing how to find $\angle ABO$ • ² For knowing how to find $\angle AOB$ • ³ $\angle BOC$ correctly calculated	• ¹ $\angle ABO = 43^\circ$ • ² $\angle AOB = 180^\circ - 86^\circ = 94^\circ$ • ³ $\angle BOC = 180^\circ - 94^\circ = 86^\circ$ <div style="text-align: right;">3R</div>

Notes:

- | | | |
|--|---|-------------------------------|
| (i) Final answer
86° | with working
3/3 | without working
2/3 |
| (ii) Alternative strategy | | |
| • ¹ For knowing how to find $\angle ACB$ | • ¹ $\angle ACB = 47^\circ$ | |
| • ² For knowing how to find $\angle OBC$ | • ² $\angle OBC = 47^\circ$ | |
| • ³ $\angle BOC$ correctly calculated | • ³ $\angle BOC = 180^\circ - 94^\circ = 86^\circ$ | |
| (iii) Angles correctly marked on diagram may be accepted | | |

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •												
10 (a)	Ans: 15 (m²)													
	<ul style="list-style-type: none"> •¹ Calculating area of rectangle 	<ul style="list-style-type: none"> •¹ $4 \times 3 = 12\text{m}^2$ 												
(b)	<ul style="list-style-type: none"> •² Calculating area of triangle 	<ul style="list-style-type: none"> •² $\frac{1}{2} \times 3 \times 2 = 3\text{m}^2$ 												
	<ul style="list-style-type: none"> •³ Correct total 	<ul style="list-style-type: none"> •³ $A = 12 + 3 = 15(\text{m}^2)$ 												
	Ans: 52.5(m³)	3K												
	<ul style="list-style-type: none"> •¹ Substitute above answer in $V = Ah$ 	<ul style="list-style-type: none"> •¹ $V = 15 \times h$ 												
	<ul style="list-style-type: none"> •² Multiply by 3.5 and calculation correct 	<ul style="list-style-type: none"> •² $15 \times 3.5 = 52.5 (\text{m}^3)$ 												
Notes:														
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	with working	without working												
(i) Final answers														
(a) 15(m ²)	3/3	2/3												
(b) 52.5(m ³)	2/2	1/2												
(ii) In part (b)														
Alternative strategy														
<ul style="list-style-type: none"> •¹ Calculate volume of cuboid or prism 		<ul style="list-style-type: none"> •¹ $V = 3 \times 4 \times 3.5$ or $\frac{1}{2} \times 3 \times 2 \times 3.5$ 												
<ul style="list-style-type: none"> •² Correct total volume 		<ul style="list-style-type: none"> •² $42 + 10.5 = 52.5 (\text{m}^3)$ 												

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
11	Ans: 0.4 (m) • ¹ For identifying a correct scale factor or equivalent • ² For correct use of scale factor • ³ For calculating x	• ¹ $\frac{0.5}{1.5} = \frac{1}{3}$ • ² $\frac{1}{3} \times 1.2$ • ³ $x = 0.4$ (m) <p style="text-align: right;">3R</p>

Notes:

(i) **Alternative strategies**

A	• ¹ For valid trig ratio leading to calculation of angle • ² Use of angle from above leading to calculation of side • ³ For calculating x	• ¹ $\sin y^\circ = \frac{1.2}{1.5}$ • ² $0.5 \times \sin 53.1$ • ³ $x = 0.4$ (m)
B	• ¹ For calculating length of base using Pythagoras • ² For correct use of scale factor • ³ For calculating x (from 3, 4, 5 triangle)	• ¹ 0.9 • ² $\frac{1}{3} \times 0.9 = 0.3$ • ³ $x = 0.4$ (m)

(ii)	Final answers	with working	without working
	0.4	3/3	1/3
	0.6	2/3	0/3

(iii) A scale drawing may be used

Question No	Give 1 mark for each •	Illustrations of evidence for awarding each mark •
12	(a) Ans: 96 (min)	
	<ul style="list-style-type: none"> •¹ A correct variation statement involving k •² Calculate a constant of variation •³ Correct calculation involving a constant of variation 	<ul style="list-style-type: none"> •¹ $t = k \times h$ •² $k = \frac{180}{75} = 2.4$ •³ $t = 2.4 \times 40 = 96$ (min)
		3K
	(b) Ans: 62.5 (mm)	
	<ul style="list-style-type: none"> •¹ Knowing to convert 2½ hours to minutes •² Knowing how to calculate the height •³ Correct calculations to find h 	<ul style="list-style-type: none"> •¹ 150 •² $150 = 2.4 \times h$ •³ $h = 62.5$ (mm)
		3R

Notes:

(i) Acceptable ratios arising from proportion methods include:

in part (a)	in part (b)
1.875 (75/40)	0.417 (75/180)
0.533 (40/75)	
0.417 (75/180)	

(ii) Ignore early or inappropriate rounding

(iii) In part (b)

Alternative strategy

• ¹ Knowing how to calculate the reduction in height in 1 hour	• ¹ $75 \div 3$
• ² Knowing to multiply answer to above by 2.5 hours	• ² 25×2.5
• ³ Correct calculations to find h	• ³ $h = 62.5$ (mm)

(iv) Final answers	with working	without working
(a) 96 (min)	3/3	2/3
337.5 (4.5 × 75)	1/3	0/3
16.7 (75/4.5)	1/3	0/3
(b) 62.5 (mm)	3/3	2/3

KU 27 marks
RE 19 marks

[END OF MARKING INSTRUCTIONS]

FINAL	KU 40 marks
TOTALS	RE 40 marks