

2011 Mathematics

Intermediate 1 Units 1, 2 & Applications Paper 1

Finalised Marking Instructions

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Part One: General Marking Principles for Mathematics Intermediate 1 Units 1, 2 & 3 Paper 1

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this Paper. These principles must be read in conjunction with the specific Marking Instructions for each question.

- 1. Marks for each candidate response must <u>always</u> be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question. If a specific candidate response does not seem to be covered by either the principles or detailed Marking Instructions, and you are uncertain how to assess it, you must seek guidance from the Principal Assessor. You can do this by posting a question on the Marking Team forum. Alternatively, you can refer the issue directly to the Principal Assessor by completing a Principal Assessor Referral form and returning it with the script in the normal way.
- 2. Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.
- 3. Award one mark for each 'bullet' point shown in the Marking Instructions.
- 4. Working subsequent to an error must be followed through with the possibility of awarding all remaining marks for the subsequent working, provided the question has not been not simplified as a result of the error. In particular, the answer to one part of a question, even if incorrect, must be accepted as a basis for subsequent dependent parts of the question. Full marks in the dependent part(s) may be awarded provided the question has not been not simplified.
- 5. Solutions which seem unlikely to include anything of relevance must nevertheless be followed through. Candidates still have the opportunity of gaining one mark or more provided the solution satisfies the criteria for the marks.
- **6.** The following should not be penalised:
 - working subsequent to a correct answer (unless it provides firm evidence that the requirements of the question have not been met)
 - omission or misuse of units (unless marks have been specifically allocated for the purpose in the Marking Instructions)
 - bad form, eg sin $x^\circ = 0.5 = 30^\circ$
 - legitimate variation in numerical values/algebraic expressions.
- 7. Full credit should only be given where the solution contains appropriate working. Where the correct answer may be obtained by inspection or mentally, credit may be given, but reference to this will be made in the Marking Instructions.
- 8. In general only give credit for answers if working is shown. A wrong answer without working receives no credit unless specifically mentioned in the Marking Instructions. The rubric on page one of the question paper states that 'full credit will be given only where the solution contains appropriate working'.
- **9.** Sometimes the method to be used in a particular question is explicitly stated; no credit should be given where a candidate obtains the correct answer by an alternative method.
- **10.** Where the method to be used in a particular question is not explicitly stated, full credit must be given for alternative methods which produce the correct answer.

- **11.** Do not penalise the same error twice in the same question.
- 12. Do not penalise a transcription error unless the question has been simplified as a result.
- **13.** Where a solution has been scored out and not replaced then provided the solution is legible marks should be awarded in line with the Marking Instructions for that question.
- 14. Where more than one solution is given, mark them all and award the least mark.
- 15. The symbols \checkmark and \times are used in the Marking Instructions to give guidance regarding the awarding of marks for specific candidate responses to some questions, eg 'award $2/4 \checkmark \times \times \checkmark$ ' indicates that the 1st & 4th marks should be awarded but the 2nd & 3rd marks should not.

Question		n	Expected Answer/s	Max Mark	Additional Guidance
1	a		Ans: 20·37 • ¹ calculate 6·47 + 13.9: 20·37	1	
1	b		Ans: 225 • ¹ calculate $\frac{5}{8}$ of 360: 225	1	
1	с		Ans: 156 • ¹ calculate 12×13 : 156	1	
2			 Ans: 13 hours 35 minutes •¹ calculate time from 1745 to 0720: 13 hours 35 minutes 	1	1. Accept 13.35
3			 Ans: 25 ¹ know to multiply 4 × (-2) then subtract answer from 17: eg 17 – (-8), 17 + 8 ² carry out integer multiplication and subtraction correctly: 25 	2	 Some common answers (no working necessary) (a) 25 (b) -26 [13 × (-2)] (c) 8 or -8 (c) 8 or -17 = -25 (c) 4 × (-2) -17] award 1/2 (c) 8 - 17 = -9 (d) 17 - 6 = 11 (e) 17 + 6 = 23 (f) 4 × (-2)

Part Two: Mathematics Intermediate 1: Paper 1, Units 1, 2 and Applications

Question		n	Expected Answer/s	Max Mark	Additional Guidance
4	a		 Ans: (-7,2) and (5,-6) plotted correctly •¹ (-7,2) and (5,-6) plotted correctly: 	1	1. Points need not be labelled
4	b		 Ans: (-1,-2) •¹ state coordinates of midpoint of PQ: (-1,-2) 	1	 Line PQ need not be drawn Accept -1,-2 without brackets or (-1), (-2) Where (2, -7) and (-6,5) are plotted in (a) then accept either (-2,-1) or (-1,-2) in (b)

Que	Question		Expected Answer/s	Max Mark	Additional Guidance
5	a		Ans: £4 • 1 know how to find cost of additional distance: $2 \times 50(p)$ • 2 correctly add £3 to above: $(\pounds)3 + 2 \times 50(p) = (\pounds)4$	2	1. (£)4 without working award 2/2 2. Some common answers (working must be shown) (a) $3 \times (\pounds)3 + 2 \times 50(p) = (\pounds)10$ award 1/2 (b) $(\pounds)3 + 3 \times 50(p) = (\pounds)4 \cdot 50$ award 1/2 (c) $3 \times (\pounds)3 + 3 \times 50(p) = (\pounds)10 \cdot 50$ award 0/2 (d) $(\pounds)3 + 50(p) = (\pounds)3 \cdot 50$ award 0/2
5	b		Ans: 4500m • 1 know to split £7 into £3 + 8×50p • 2 calculate distance: $500 + 8 \times 500 = 4500$	2	1. 4500 without working award 2/2 (irrespective of answer to (a)) 2. Award 1/2 for these common answers (working must be shown) (a) If candidate uses 50p per 500m, then allow one 500 less or one 500 extra (i) $8 \times 500 = 4000$ (ii) $500 + 7 \times 500 = 4000$ (iii) $500 + 9 \times 500 = 5000$ (b) If candidate uses £1 per 1000m, then allow one 1000 less or one 1000 extra (i) $4 \times 1000 = 4000$ (ii) $500 + 3 \times 1000 = 3500$ (iii) $500 + 5 \times 1000 = 5500$ (c) If candidate uses £1 per 500m, then £3 + 4 × £1 must be used $500 + 4 \times 500 = 2500$ 3. Where incorrect method is used in part (a), then allow follow through in part (b) (i) (a) = £4.50 (b) = 4000 award 2/2 for (b) (ii) (a) = £10.50 (b) = 1000 award 1/2 for (b) (iii) (a) = £10 (b) = 1071 award 2/2 for (b), (b) = 1000+500 ÷ 7 award1/2 for (b) (b) = 1000 award 0/2 for (b)

Question		n	Expected Answer/s	Max Mark	Additional Guidance
6	a		 Ans: 17 •¹ evaluate formula: 17 	1	1. Answer may be written in spreadsheet.
6	b		Ans: =AVERAGE(E2E6) • ¹ state formula: AVERAGE(E2E6)	1	 Accept any punctuation mark or space between E2 and E6 Accept abbreviations for AVERAGE eg AV(E2E6) Accept SUM(E2E6)/5 or (E2+E3+E4+E5+E6)/5 [must be / not ÷]

Que	Question		Expected Answer/s	Max Mark	Additional Guidance	
7	a		 Ans: 1cm to 25km ¹ know how to find scale: 200 ÷ 8 ² find scale: 1cm to 25km or equivalent 	2	 Accept 1cm to 25000m, 1cm to 2500000cm, 1:2500000, 1 box to 25km 1cm to 25m or 1:25 award 1/2 	
7	b		 Ans: •¹ one bearing shown correctly: (±2°) •² second bearing shown correctly: (±2°) •³ point of intersection of two bearings shown 	3	 Where candidate has bearings above the horizontal only the third mark can be awarded for the point of intersection. If the bearings are not drawn on the diagram: (i) Point of intersection in correct position award 3/3 (ii) Point on correct bearing from either Beta or Gamma award 1/3 	

an answer of 15 without working, award 1/1 with evidence of an incorrect method, award 0/1 eg 5, 10, 15, 20, 25 [median] $75 \div 5 = 15$ ["mean"]
ept 7:30, 7 out of 30, 7 in 30, 7-30, b(3), 23(·3)%
ard of 1 st mark: 140, 125 and 495 I not appear in table but must be wn in working
mark may only be awarded for mpting $\sum fx \div 30$
werWith evidence for 1 st markWithout evidence for 1 st mark $3/3 \checkmark \checkmark \checkmark$ $2/3 \times \checkmark \checkmark$ $495 \div 5$] $1/3 \checkmark \times \times$ $0/3$ $\div 3 \times 10$ $2/3 \checkmark \checkmark \times$ $1/3 \checkmark \times \times$ 650]

Question		n	Expected Answer/s	Max Mark	Additional Guidance
9			Ans: $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	3	 Where there are missing totals a maximum of 2 marks is available (a) 5 rows otherwise "correct" award 2/3 (b) 2 rows otherwise "correct" award 1/3
10	a		Ans: 9 or -2 • ¹ find hidden number: 9 or -2	1	1. Answer may appear on hidden card
10	b		Ans: 4 • ¹ know that total = mean × 6: 5×6 • ² find hidden number: 30 - (7 + 8 + 2 + 8 + 1) = 4	2	 4 without working award 2/2 (a) 26÷6=4(·)=4 award 0/2 (b) 26÷5=5(·) then an answer of 4 award 2/2 Alternative strategy: two trials where second is better than first: find hidden number: 4 Answer may appear on hidden card

TOTAL MARKS FOR PAPER 1

30

[END OF MARKING INSTRUCTIONS]