



2008 Mathematics

Intermediate 1 Units 1, 2 & Applications Paper 1

Finalised Marking Instructions

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

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
1 (a)	Ans: 2·368 • ¹ process: calculate $2\cdot658 - 0\cdot29$	• ¹ 2·368 1 mark
(b)	Ans: 42000 • ¹ process: calculate 14×3000	• ¹ 42000 1 mark
(c)	Ans: 1·09 • ¹ process: calculate $5\cdot45 \div 5$	• ¹ 1·09 1 mark
NOTES:		
2	Ans: 8 hours 40 minutes • ¹ process: calculate number of hours and minutes from 2235 to 0715	• ¹ 8 hours 40 minutes 1 mark
NOTES: 1. Accept 8:40		
3 (a)	Ans: 559 • ¹ interpret/process: evaluate formula	• ¹ 559 1 mark
(b)	Ans: = AVERAGE(B3..E3) • ¹ communicate: state formula	• ¹ AVERAGE(B3..E3) or equivalent 1 mark
NOTES: 1. Accept any punctuation mark or space between B3 and E3 2. Accept abbreviations for AVERAGE eg AV(B3..E3) 3. Accept $(B3 + C3 + D3 + E3)/4$ or $SUM(B3..E3)/4$ (must be / not ÷) 4. Do not accept $AVERAGE=(B3..E3)$, $AVERAGE(B3*E3)$, $AVERAGE B3..E3$, $(B3..E3)/4$,		

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
4	Ans: £116 • ¹ strategy: correct method • ² process: carry out calculations correctly	• ¹ $20 + 12 \times (\text{no. of 15 minute slots})$ • ² 116 <p style="text-align: right;">2 marks</p>

NOTES:

1. Correct answer without working award 2/2

2. Some common answers (no working necessary)
 - (a) 256 [(20+12)×8] award 1/2
 - (b) 96 [12×8] award 1/2

3. Award of 2nd mark
 - (a) 2nd mark is available for correctly calculating the answer to $20 + 12 \times (\text{number of 15 minute slots})$ where **working** shows candidate has **calculated** “number of 15 minute slots” incorrectly.

 - (b) where there is no working to support an incorrect number of 15 minute slots the 2nd mark is **only** available for (working must be shown)

(i) $20 + 12 \times 4 = 68$	}	award 1/2 $\times \checkmark$
(ii) $20 + 12 \times 120 = 1460$		
(iii) $20 + 15 \times 8 = 140$		

 - (c)

(i) $20 + 12 \times 2 = 44$	}	award 0/2
(ii) $20 + 12 \times 15 = 200$		

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •									
5 (a)	Ans: $\frac{7}{70}$ • ¹ process: find probability	• ¹ $\frac{7}{70}$ or equivalent <p style="text-align: right;">1 mark</p>									
NOTES: <ol style="list-style-type: none"> Accept 7:70, 7 out of 70, 7 in 70, 7-70, 1/10, 0.1, 10% Do not penalise subsequent incorrect cancelling 											
5 (b)	Ans: 2·1 • ¹ communicate/process: complete table • ² strategy: know to divide Σfx by 70 • ³ process: correctly divide Σfx	• ¹ $\begin{array}{r} 33 \\ 32 \\ 25 \\ \hline 147 \end{array}$ • ² $147 \div 70$ • ³ 2·1 <p style="text-align: right;">3 marks</p>									
NOTES: <ol style="list-style-type: none"> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 33%;"><u>Final answer</u></th> <th style="text-align: left; width: 33%;"><u>Criteria for 1st mark met</u></th> <th style="text-align: left; width: 33%;"><u>Criteria for 1st mark not met</u></th> </tr> </thead> <tbody> <tr> <td>2·1</td> <td>3/3</td> <td>2/3</td> </tr> <tr> <td>24·5 (147 ÷ 6)</td> <td>2/3</td> <td>1/3</td> </tr> </tbody> </table> Award of 1st mark 33, 32, 25 and 147 need not appear in table but must be shown in working (a) 3rd mark may only be awarded where answer to division is given to one or more decimal places (accept rounding or truncation) e.g. $147 \div 5 = 29\cdot4$, $146 \div 70 = 2\cdot0\dots$ or 2·1 (b) Do not award 3rd mark where working is eased e.g. $147 \div 7 = 21$ 			<u>Final answer</u>	<u>Criteria for 1st mark met</u>	<u>Criteria for 1st mark not met</u>	2·1	3/3	2/3	24·5 (147 ÷ 6)	2/3	1/3
<u>Final answer</u>	<u>Criteria for 1st mark met</u>	<u>Criteria for 1st mark not met</u>									
2·1	3/3	2/3									
24·5 (147 ÷ 6)	2/3	1/3									

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
6	<p>Ans: see below</p> <ul style="list-style-type: none"> •¹ interpret: interpret information •² strategy: find some possibilities •³ strategy: find all possibilities 	<ul style="list-style-type: none"> •¹ one correct column •² another two correct columns •³ final two correct columns <p style="text-align: right;">3 marks</p>

Dinner and Cabaret – £55	55	55	55		
Pirate Cruise – £40	40			40	
Volcano Trip – £35		35	35		35
Caves and Grottos – £30		30		30	30
Parrots and Dolphins – £25	25		25	25	25
Reps’ Show – £20 or Free	Free	Free	Free	20	20
Total Price	120	120	115	115	110

NOTES:

1. A correct column must have 4 valid entries and a correct total.
2. Where there are missing or incorrect totals a maximum of 2 marks is available
 - (a) 5 columns otherwise “correct” award 2/3
 - (b) 2 columns otherwise “correct” award 1/3
3. If ticks are used totals must be shown

Dinner and Cabaret – £55	√	√	√		
Pirate Cruise – £40	√			√	
Volcano Trip – £35		√	√		√
Caves and Grottos – £30		√		√	√
Parrots and Dolphins – £25	√		√	√	√
Reps’ Show – £20 or Free	√	√	√	√	√
Total Price	120	120	115	115	110

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
7	<p>Ans: boxplot</p> <ul style="list-style-type: none"> •¹ process: arrange numbers in order •² interpret: minimum •³ interpret: median •⁴ interpret: upper quartile 	<ul style="list-style-type: none"> •¹ 13 14 16 16 17 17 18 19 20 20 23 24 25 •² 13 •³ 18 •⁴ 21.5 <p style="text-align: right;">4 marks</p>

NOTES:

1. Correctly completed boxplot (no working necessary) award 4/4
2. If any of min, Q_2 or Q_3 is not shown on boxplot a maximum of 3/4 is available
3. Ordered list with one missing or one extra number
Working should be followed through with the possibility of awarding 3/4
4. Where there is no working:
 - (a) any two of min=13, $Q_2 = 18$, $Q_3 = 21.5$ shown on boxplot award 2/4
 - (b) any one of min=13, $Q_2 = 18$, $Q_3 = 21.5$ shown on boxplot award 1/4
5. Where the list is not ordered
min=13, $Q_2=16$, $Q_3=16$ shown on boxplot award 2/4
6. If Q_2 is incorrect working should be followed through with the possibility of awarding the 4th mark

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
8	<p>Ans: 1750 metres, 310°</p> <ul style="list-style-type: none"> •¹ strategy/process: correctly measure distance •² strategy/process: correctly multiply measured distance by 250 •³•⁴ strategy/process: find bearing 	<ul style="list-style-type: none"> •¹ 7 (± 0.2cm) •² $7 \times 250 = 1750$ •³•⁴ 310 (± 2) [award 1 for 50(± 2) or 130(± 2)] <p style="text-align: right;">4 marks</p>

NOTES:

1. Where there is no working the only other acceptable answers for the award of first 2 marks are 1700 (6.8×250), 1725 (6.9×250), 1775 (7.1×250), 1800 (7.2×250)
2. The first 2 marks are not available for correctly multiplying an angle by 250. Assume that 40, 50, 130, 310 are angles unless there is clear evidence to suggest otherwise.

9	<p>Ans: -9</p> <ul style="list-style-type: none"> •¹•² interpret/process: square -8 correctly •³ interpret/process: subtract 73 correctly 	<ul style="list-style-type: none"> •¹•² 64 (award 1 for $-8^2 = -64$ or $8^2 = \pm 64$ or -8×-8) •³ -9 <p style="text-align: right;">3 marks</p>
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NOTES:

1. Be aware !!!

- | | | |
|-------------------------------|-----------|------------------------------|
| (a) -9 with no working | award 2/3 | $\times\sqrt{\sqrt{\quad}}$ |
| (b) $8^2 - 73 = 64 - 73 = -9$ | award 2/3 | $\times\sqrt{\sqrt{\quad}}$ |
| (c) $64 - 73 = -9$ | award 3/3 | $\sqrt{\sqrt{\sqrt{\quad}}}$ |
| (d) $-8^2 - 73 = -9$ | award 3/3 | $\sqrt{\sqrt{\sqrt{\quad}}}$ |

2. Some common answers:

- | | | |
|-----------------------------------|-----------|-----------------------------|
| (a) $-8^2 - 73 = -64 - 73 = -137$ | award 2/3 | $\times\sqrt{\sqrt{\quad}}$ |
| (b) $-8^2 - 73 = 16 - 73 = -57$ | award 1/3 | $\times\times\sqrt{\quad}$ |
| (c) $-8^2 - 73 = -16 - 73 = -89$ | award 1/3 | $\times\times\sqrt{\quad}$ |

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
10	<p>Ans: £18</p> <ul style="list-style-type: none"> •¹ strategy: know how to calculate annual interest •² process: calculate 5% of 1440 •³ strategy: know how to calculate interest for 3 months •⁴ process: calculate $72 \div 12 \times 3$ 	<ul style="list-style-type: none"> •¹ $1440 \div 10 \div 2$ or equivalent •² 72 •³ $72 \div 12 \times 3$ or equivalent (or $72 \div 12 = 6$) •⁴ 18 <p style="text-align: right;">4 marks</p>

NOTES:

1. Some common answers (no working necessary)
 - (a) 18 (correct answer) award 4/4
 - (b) 72 (annual interest) award 2/4 $\sqrt{\sqrt{\times\times}}$

2. Some common answers (working must be shown)
 - (a) $1440 \times \frac{5}{100}$ award 1/4 $\sqrt{\times\times\times}$
 - (b) 288 [$72 \times 12 \div 3$] award 3/4 $\sqrt{\sqrt{\times\sqrt{\times}}}$
 - (c) 288 [$1440 \div 5$] award 0/4
 - (d) 216 [$72 \times 12 \div 4$ or 72×3] award 2/4 $\sqrt{\sqrt{\times\times}}$
 - (e) 24 [$72 \div 3$] award 2/4 $\sqrt{\sqrt{\times\times}}$

3. 1458 (1440 + 18)
 - (a) if the candidate **states** that the interest is 18 award 4/4
 - (b) otherwise (no working necessary) award 3/4 $\sqrt{\sqrt{\sqrt{\times}}}$

4. Award of 3rd mark: accept $72 \div 10 \div 2$ as evidence of attempt to calculate $72 \div 12$
 e.g. $72 \div 10 \div 2 \times 3 = 10.8(0)$ award 3/4 $\sqrt{\sqrt{\sqrt{\times}}}$

5. Alternative strategies
 - (a) 18 [$5 \div 12 \times 3 = 1.25 \rightarrow 1440 \div 100 \times 1.25$] award 4/4
 - (b) 0.41... or 0.42 [$5 \div 12$] (working must be shown) award 1/4 $\times\times\sqrt{\times}$
 - (c) 18 [$1440 \div 12 \times 3 = 360 \div 10 \div 2$] award 4/4
 - (d) 120 [$1440 \div 12$] (working must be shown) award 1/4 $\times\times\sqrt{\times}$

TOTAL MARKS FOR PAPER 1

30