2008 Mathematics

Intermediate 1 Units 1, 2 & 3 Paper 1

Finalised Marking Instructions

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Mathematics Intermediate 1: Paper 1, Units 1, 2 and 3

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
1 (a)	**Ans: 2·395** •[1] process: calculate 2·685 - 0·29	•[1] 2·395 **1 mark**
(b)	**Ans: 42000** •[1] process: calculate 14 × 3000	•[1] 42000 **1 mark**
(c)	**Ans: 1·09** •[1] process: calculate 5·45 ÷ 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	**Ans: 0·0065** •[1]•[2] process: write $6{\cdot}5 \times 10^{-3}$ in full	•[1]•[2] (0)·0065 [award 1 for 6·5 × 0·001 or 6500 ($6{\cdot}5 \times 10^{3}$)] **2 marks**
NOTES: 1. (0)·006·5 award 1/2 2. 006·5, 0065 award 0/2		

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 × (no. of 15 minute slots) •[2] 116 **2 marks**

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. <u>Award of 2nd mark</u>

   (a) 2nd mark is available for correctly calculating the answer to
   20 + 12×(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 + 12×4 = 68
   (ii) 20 + 12×120 = 1460
   (iii) 20 + 15×8 = 140
   } award 1/2 ×√

   (c) (i) 20 + 12×2 = 44
   (ii) 20 + 12×15 = 200
   } award 0/2

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 **1 mark**

NOTES:

1. Accept 7:70, 7 out of 70, 7 in 70, 7-70, 1/10, 0.1, 10%
2. 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] 33 32 25 147 •[2] 147 ÷ 70 •[3] 2·1 **3 marks**

NOTES:

1.

Final answer	**Criteria for 1st mark met**	**Criteria for 1st mark not met**
2·1	3/3	2/3
24·5 (147 ÷ 6)	2/3	1/3

2. Award of 1st mark
   33, 32, 25 and 147 need not appear in table but must be shown in working

3. (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÷5 = 29·4, 147÷6 = 24·5, 146÷70 = 2·0… or 2·1
   (b) Do not award 3rd mark where working is eased eg 147÷7 = 21

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
6	**Ans: see below** •[1] interpret: interpret information •[2] strategy: find some possibilities •[3] strategy: find all possibilities	 •[1] one correct column •[2] another two correct columns •[3] final two correct columns **3 marks**

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	**Ans: m = 8** •[1] process: start to collect like terms •[2] process: collect like terms **and** equate •[3] process: solve equation for m	 •[1] 6m or 48 •[2] 6m = 48 •[3] m = 8 **3 marks**

NOTES:

1. For answers without valid working
   eg (i) $6m - 8 = 40 \rightarrow 48 \div 6 \rightarrow m = 8$ award 2/3
   (ii) m = 8 without working award 1/3
   (iii) $48 \div 6 = 8$ award 1/3
   (iv) $7 \times 8 - 8 = 40 + 8 \rightarrow m = 8$ award 1/3

2. For the award of the 3rd mark an answer of the form m = is required

3. Answers acceptable for partial credit (valid working must be shown)
   (i) $6m = 48 \rightarrow 8$
   (ii) $6m = 32 \rightarrow m = 5{\cdot}3..$ } award 2/3
   (iii) $8m = 48 \rightarrow m = 6$

   (iv) $6m = 32 \rightarrow m = 5r2$
   (v) $8m = 32 \rightarrow m = 4$ } award 1/3

<table>
<tr><th>Question No</th><th>Marking Scheme
Give 1 mark for each •</th><th>Illustrations of evidence for awarding a mark at each •</th></tr>
<tr><td>8 (a)</td><td>Ans:
<table>
<tr><td>x</td><td>– 2</td><td>0</td><td>2</td><td>4</td></tr>
<tr><td>y</td><td>– 8</td><td>– 3</td><td>2</td><td>7</td></tr>
</table>
•1 process: calculate y when $x = -2$
•2 process: calculate y when $x = 0$ and 4</td><td>•1 -8
•2 -3 and 7
2 marks</td></tr>
<tr><td>8 (b)(i)</td><td>Ans: straight line graph of $y = 2 \cdot 5x - 3$
•1 communicate: prepare to draw line $y = 2 \cdot 5x - 3$
•2 communicate: draw the line $y = 2 \cdot 5x - 3$</td><td>•1 all three points from table plotted correctly
•2 draw straight line through the four points shown in the table
2 marks</td></tr>
<tr><td colspan="3">NOTES:
1. If the line $y = 2{\cdot}5x - 3$ is drawn award 2/2
[minimum acceptable length: line joining (–2,–8) to (4,7)]
2. Where the four points in the table satisfy y = x or y = 4–x then award 1/2 for drawing a line through the four points
3. Where the four points plotted are consistent with table and are not collinear, the 2nd mark is unavailable
4. Where (y,x) is consistently plotted, answer should be followed through with the possibility of awarding the 2nd mark</td></tr>
<tr><td>8 (b)(ii)</td><td>Ans: straight line graph of $y = 3$
•1 communicate: draw the line y = 3</td><td>•1 draw the line $y = 3$
1 mark</td></tr>
<tr><td colspan="3">NOTES:
1. Minimum acceptable length: 4 units with at least 1 unit in each of quadrants 1 & 2
2. Where (y,x) is consistently plotted in (b)(i), the mark is only available for drawing the line x=3</td></tr>
</table>

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
9	**Ans: –9** $\bullet^1$ $\bullet^2$ interpret/process: square -8 correctly $\bullet^3$ interpret/process: subtract 73 correctly	$\bullet^1\bullet^2$ 64 (award 1 for $-8^2 = -64$ or $8^2 = \pm 64$ or -8×-8) $\bullet^3$ –9 **3 marks**

NOTES:

1. **Be aware !!!**
   (a) –9 with no working award 2/3 ×√√
   (b) $8^2 - 73 = 64 - 73 = -9$ award 2/3 ×√√
   (c) $64 - 73 = -9$ award 3/3 √√√
   (d) $-8^2 - 73 = -9$ award 3/3 √√√

2. Some common answers:
   (a) $-8^2 - 73 = -64 - 73 = -137$ award 2/3 ×√√
   (b) $-8^2 - 73 = 16 - 73 = -57$ award 1/3 ××√
   (c) $-8^2 - 73 = -16 - 73 = -89$ award 1/3 ××√

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
10	**Ans: £18**	
	•[1] strategy: know how to calculate annual interest	•[1] 1440 ÷ 10 ÷ 2 or equivalent
	•[2] process: calculate 5% of 1440	•[2] 72
	•[3] strategy: know how to calculate interest for 3 months	•[3] 72 ÷ 12 × 3 or equivalent (or 72 ÷ 12 = 6)
	•[4] process: calculate 72 ÷ 12 × 3	•[4] 18 **4 marks**

NOTES:

1. Some common answers (no working necessary)
   (a) 18 (correct answer) award 4/4
   (b) 72 (annual interest) award 2/4 √√××

2. Some common answers (working must be shown)
   (a) 1440 × $^{5}/_{100}$ award 1/4 √×××
   (b) 288 [72 × 12 ÷ 3] award 3/4 √√×√
   (c) 288 [1440 ÷ 5] award 0/4
   (d) 216 [72 × 12 ÷ 4 or 72 × 3] award 2/4 √√××
   (e) 24 [72 ÷ 3] award 2/4 √√××

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 √√√×

4. Award of 3rd mark: accept 72÷10÷ 2 as evidence of attempt to calculate 72÷12
   e.g. 72÷10÷ 2×3 = 10·8(0) award 3/4 √√√×

5. Alternative strategies
   (a) 18 [5 ÷12 × 3 = 1·25 → 1440 ÷ 100 × 1·25] award 4/4
   (b) 0·41… or 0·42 [5 ÷12] (working must be shown) award 1/4 ××√×
   (c) 18 [1440 ÷12 × 3 = 360 ÷ 10 ÷ 2] award 4/4
   (d) 120 [1440 ÷12] (working must be shown) award 1/4 ××√×

TOTAL MARKS FOR PAPER 1

30