## 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

| $\begin{gathered} \hline \text { Question } \\ \text { No } \\ \hline \end{gathered}$ | Marking Scheme Give 1 mark for each - | Illustrations of evidence for awarding a mark at each - |
| :---: | :---: | :---: |
| 1 (a) | Ans: 2.395 <br> - ${ }^{1}$ process: calculate 2.685-0.29 | - $2 \cdot 395$ ( mark |
| (b) | Ans: 42000 <br> - ${ }^{1}$ process: calculate $14 \times 3000$ | $\bullet{ }^{1} 42000 \quad \mathbf{1}$ mark |
| (c) | Ans: 1.09 <br> - ${ }^{1}$ process: calculate $5 \cdot 45 \div 5$ | $\bullet 1.09$ ( mark |
| NOTES: |  |  |
| 2 | Ans: 8 hours 40 minutes <br> - ${ }^{1}$ process: calculate number of hours and minutes from 2235 to 0715 | - ${ }^{18}$ hours 40 minutes ${ }^{\text {1 mark }}$ |
| NOTES: <br> 1. | ccept 8:40 |  |
| 3 | Ans: 0.0065 <br> $\bullet^{1} \bullet^{2}$ process: write $6 \cdot 5 \times 10^{-3}$ in full | $\bullet^{1} \bullet^{2}(0) \cdot 0065$ <br> [award 1 for $6.5 \times 0.001$ or 6500 $\left(6.5 \times 10^{3}\right)$ ] |
| NOTES: |  | 2 marks |
| 1. | 1. (0).006.5 <br> award $1 / 2$ |  |


| Question No |  | tratio |
| :---: | :---: | :---: |
| 4 | Ans: £116 | $20+12 \times$ (no. of 15 minute slots) $116 \quad 2$ marks |
| NOTES: <br> 1. Correct answer without working <br> award 2/2 <br> 2. Some common answers (no working necessary) <br> (a) $256[(20+12) \times 8] \quad$ award $1 / 2$ <br> (b) $96[12 \times 8] \quad$ award $1 / 2$ <br> 3. Award of $2^{\text {nd }}$ mark <br> (a) $2^{\text {nd }}$ mark is available for correctly calculating the answer to $20+12 \times$ (number of 15 minute slots) where working shows candidate has calculated "number of 15 minute slots" incorrectly. <br> (b) where there is no working to support an incorrect number of 15 minute slots the $2^{\text {nd }}$ mark is only available for (working must be shown) <br> (i) $20+12 \times 4=68$ <br> (ii) $20+12 \times 120=1460\} \quad$ award $1 / 2 \times \sqrt{ }$ <br> (iii) $20+15 \times 8=140$ <br> (c) (i) $20+12 \times 2=44$ <br> (ii) $20+12 \times 15=200\}$ <br> award 0/2 |  |  |


| $\begin{gathered} \hline \text { Question } \\ \text { No } \\ \hline \end{gathered}$ | Marking Scheme Give 1 mark for each - | Illustrations of evidence for awarding a mark at each - |
| :---: | :---: | :---: |
| 5 (a) | Ans: 7/70 <br> - process: find probability | - 7/70 or equivalent 1 mark |
| NOTES: <br> 1. Accept $7: 70,7$ out of 70,7 in $70,7-70,1 / 10,0.1,10 \%$ <br> 2. Do not penalise subsequent incorrect cancelling |  |  |
| 5 (b) | Ans: $\mathbf{2 \cdot 1}$ <br> - ${ }^{1}$ communicate/process: complete table <br> - ${ }^{2}$ strategy: know to divide $\Sigma \mathrm{fx}$ by 70 <br> - ${ }^{3}$ process: correctly divide $\Sigma \mathrm{fx}$ | $\bullet \begin{array}{r}33 \\ 32 \\ 25 \\ \hline \\ \hline\end{array}$ <br> - ${ }^{2} \quad 147 \div 70$ <br> - $3 \cdot 1$ <br> 3 marks |
| NOTES: <br> 1. Final answer <br> $2 \cdot 1$ <br> 2. Award of $1^{\text {st }}$ mark $33,32,25$ and 147 need not appear in table but must be shown in working <br> 3. (a) $3^{\text {rd }}$ mark may only be awarded where answer to division is given to one or more decimal places (accept rounding or truncation) $\text { e.g. } 147 \div 5=29 \cdot 4,147 \div 6=24 \cdot 5,146 \div 70=2 \cdot 0 \ldots \text { or } 2 \cdot 1$ <br> (b) Do not award $3^{\text {rd }}$ mark where working is eased eg $147 \div 7=21$ |  |  |


| $\begin{gathered} \hline \text { Question } \\ \text { No } \\ \hline \end{gathered}$ | Marking Scheme Give 1 mark for each • | Illustrations of evidence for awarding a mark at each • |
| :---: | :---: | :---: |
| 6 | Ans: see below <br> - ${ }^{1}$ interpret: interpret information <br> - ${ }^{2}$ strategy: find some possibilities | - ${ }^{1}$ one correct column <br> - ${ }^{2}$ another two correct columns <br> - 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 | $\checkmark$ | $\checkmark$ | $\checkmark$ |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Pirate Cruise -£40 | $\checkmark$ |  |  | $\checkmark$ |  |
| Volcano Trip -£35 |  | $\checkmark$ | $\checkmark$ |  | $\checkmark$ |
| Caves and Grottos -£30 |  | $\checkmark$ |  | $\checkmark$ | $\checkmark$ |
| Parrots and Dolphins -£25 | $\checkmark$ |  | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Reps’ Show - $\mathbf{\searrow 2 0}$ or Free | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Total Price | $\mathbf{1 2 0}$ | $\mathbf{1 2 0}$ | $\mathbf{1 1 5}$ | $\mathbf{1 1 5}$ | $\mathbf{1 1 0}$ |


| $\begin{gathered} \hline \text { Question } \\ \text { No } \end{gathered}$ | Marking Scheme Give 1 mark for each - | Illustrations of evidence for awarding a mark at each • |
| :---: | :---: | :---: |
| 7 | Ans: $m=8$ <br> - ${ }^{1}$ process: start to collect like terms <br> - ${ }^{2}$ process: collect like terms and equate <br> - 3 process: solve equation for $m$ | - ${ }^{1} 6 \mathrm{~m}$ or 48 <br> - ${ }^{2} \quad 6 \mathrm{~m}=48$ <br> $\bullet^{3} \quad \mathrm{~m}=8$ <br> 3 marks |
| NOTES: <br> 1. For answers without valid working <br> eg (i) $6 \mathrm{~m}-8=40 \rightarrow 48 \div 6 \rightarrow \mathrm{~m}=8$ <br> award $2 / 3$ <br> (ii) $\mathrm{m}=8$ without working <br> award $1 / 3$ <br> (iii) $48 \div 6=8$ <br> award $1 / 3$ <br> (iv) $7 \times 8-8=40+8 \rightarrow \mathrm{~m}=8$ <br> award $1 / 3$ <br> 2. For the award of the $3^{\text {rd }}$ mark an answer of the form $\mathrm{m}=$ is required <br> 3. Answers acceptable for partial credit (valid working must be shown) <br> (i) $6 \mathrm{~m}=48 \rightarrow 8$ <br> (ii) $6 \mathrm{~m}=32 \rightarrow \mathrm{~m}=5 \cdot 3 . . \square$ award $2 / 3$ <br> (iii) $8 \mathrm{~m}=48 \rightarrow \mathrm{~m}=6$ <br> (iv) $6 \mathrm{~m}=32 \rightarrow \mathrm{~m}=5 \mathrm{r} 2\}$ <br> (v) $8 \mathrm{~m}=32 \rightarrow \mathrm{~m}=4\}$ award $1 / 3$ |  |  |



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

1. Be aware !!!
(a) -9 with no working
(b) $8^{2}-73=64-73=-9$
award 2/3
award $2 / 3 \times \sqrt{ }$
(c) $\quad 64-73=-9$ award $3 / 3 \quad \sqrt{ } \sqrt{ } \sqrt{ }$
(d) $-8^{2}-73=-9$
award $3 / 3 \quad \sqrt{ } \sqrt{ }$
2. Some common answers:
(a) $-8^{2}-73=-64-73=-137 \quad$ award $2 / 3 \times \sqrt{ } \sqrt{ }$
(b) $-8^{2}-73=16-73=-57 \quad$ award $1 / 3 \quad \times \times \sqrt{ }$
(c) $-8^{2}-73=-16-73=-89 \quad$ award $1 / 3 \quad \times \times \sqrt{ }$

|  |  | Ig |
| :---: | :---: | :---: |
| 10 | Ans: £18 <br> - ${ }^{1}$ strategy: know how to calculate annual interest <br> -2 process: calculate $5 \%$ of 1440 <br> -3 strategy: know how to calculate interest for 3 months | - ${ }^{3} 72 \div 12 \times 3$ or equivalent (or $72 \div 12=6$ ) |
| NOTES: <br> 1. Some common answers (no working necessary) <br> (a) 18 (correct answer) <br> award 4/4 <br> (b) 72 (annual interest) <br> award $2 / 4 \quad \sqrt{ } \sqrt{ } \times x$ <br> 2. Some common answers (working must be shown) <br> (a) $1440 \times \frac{5}{100}$ <br> award 1/4 $\quad \sqrt{ } \times \times \times$ <br> (b) $288[72 \times 12 \div 3]$ <br> award $3 / 4 \quad \sqrt{ } \sqrt{ } \times \sqrt{ }$ <br> (c) $288[1440 \div 5]$ <br> award $0 / 4$ <br> (d) $216[72 \times 12 \div 4$ or $72 \times 3]$ <br> award $2 / 4 \quad \sqrt{ }{ } \times \times$ <br> (e) $24 \quad[72 \div 3]$ <br> award 2/4 $\quad \sqrt{ } \sqrt{ } \times \times$ <br> 3. $1458(1440+18)$ <br> (a) if the candidate states that the interest is 18 award $4 / 4$ <br> (b) otherwise (no working necessary) <br> award $3 / 4 \quad \sqrt{ } \sqrt{ } \sqrt{ } \times$ <br> 4. Award of $3{ }^{\text {rd }}$ mark: accept $72 \div 10 \div 2$ as evidence of attempt to calculate $72 \div 12$ e.g. $72 \div 10 \div 2 \times 3=10 \cdot 8(0)$ award $3 / 4 \quad \sqrt{ } \sqrt{ } \sqrt{ } \times$ <br> 5. Alternative strategies <br> (a) $18 \quad[5 \div 12 \times 3=1.25 \rightarrow 1440 \div 100 \times 1.25] \quad$ award $4 / 4$ <br> (b) $0 \cdot 41 \ldots$ or $0 \cdot 42[5 \div 12] \quad$ (working must be shown) award $1 / 4 \times \times \sqrt{ } \times$ <br> (c) $18[1440 \div 12 \times 3=360 \div 10 \div 2]$ award 4/4 <br> (d) $120[1440 \div 12]$ (working must be shown) <br> award $1 / 4 \quad \times \times \sqrt{ } \times$ |  |  |

## TOTAL MARKS FOR PAPER 1

## 2008 Mathematics

## Intermediate 1 Units 1, 2 \& 3 Paper 2

## Finalised Marking Instructions

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


| $\begin{aligned} & \hline \text { Question } \\ & \text { No } \end{aligned}$ | Marking Scheme Give 1 mark for each • | Illustrations of evidence for awarding a mark at each • |
| :---: | :---: | :---: |
| 2 (a) | Ans: £841 <br> - ${ }^{1}$ interpret: find basic premium | -1841 $\mathbf{1}$ mark |
| NOTES: <br> 1. Working subsequent to "correct" answer e.g. $841 \div 12=70 \cdot 08$ award $0 / 1$ |  |  |
| 2 (b) | Ans: £277.53 <br> - ${ }^{1}$ interpret/strategy/process: find discount <br> - ${ }^{2}$ strategy/process: find net premium | - ${ }^{1} \quad \frac{67}{100} \times 841=563.47$ <br> - 277.53 |
| NOTES: <br> 1. Some common answers <br> 2. <br> (i) ${ }^{67} / 100 \times 841=563 \cdot 47=563 \cdot 50$ or 563 award $1^{\text {st }}$ mark <br> (ii) ${ }^{67} / 100 \times 841=563.50$ or 563 do not award $1^{\text {st }}$ mark |  |  |


| Question No | Marking Scheme Give 1 mark for each • | Illustrations of evidence for awarding a mark at each • |
| :---: | :---: | :---: |
| 3 (a) | Ans: $20 u+7$ <br> - ${ }^{1}$ process: multiply out brackets <br> -2 process: collect like terms | - ${ }^{1} \quad 20 u-8+15$ or $20 u-8$ <br> - ${ }^{2} \quad 20 u+7$ 2 marks |
| NOTES: <br> 1. Do not award $1^{\text {st }}$ mark for $20 u-8+60$ <br> 2. $20 u-23,20 u+13$ (no working necessary) award $1 / 2$ <br> 3. $20-8+15=27$ award $0 / 2$ <br> 4. Where a candidate creates and then tries to solve an equation the $2^{\text {nd }}$ mark cannot be awarded |  |  |
| 3 (b) | Ans: $\quad 3(3 c+8)$ <br> - process: identify common factor <br> - ${ }^{2}$ process: factorise | - ${ }^{1} 3$ or $3 c+8$ <br> -2 $3(3 c+8)$ |
| NOTES: <br> 1. $9(\mathrm{c}+2 \cdot 7), 9(\mathrm{c}+2 \cdot 66 \ldots$. $) \quad$ award $1 / 2$ <br> 2. $9(\mathrm{c}+2 \cdot 6)$ <br> award 0/2 <br> [24 $\div 9=2$ remainder 6] |  |  |


| Question No | Marking Scheme <br> Give 1 mark for each • | Illustrations of evidence for awarding a mark at each - |
| :---: | :---: | :---: |
| 4 (a) | Ans: 2.5 <br> - ${ }^{1}$ strategy: know to order numbers <br> - ${ }^{2}$ process: find median | -1 1112233467 <br> - 2.5 <br> 2 marks |
| NOTES: <br> 1. <br> 2. <br> 3. | $\frac{\text { Answer }}{2 \cdot 5}$ with valid working <br> $\frac{2 / 2}{}$ $1 / 2$ <br> 4 (numbers not ordered) $1 / 2$ <br> If "correct" median is found from ordered list with number <br> Accept ordered list written in part (a) or part (b) | without valid working <br> $2 / 2$ <br> $0 / 2$ <br> $0 / 2$ <br> ne missing (or one extra) <br> award 1/2 |
| 4 (b) | Ans: 6 <br> - ${ }^{1}$ strategy/process: find range | $\bullet^{1} 6$ |
| NOTES: |  |  |
| 4 (c) | Ans: Less weeds remain with Noweed. Number of remaining weeds vary more with Noweed. <br> - ${ }^{1}$ interpret/communicate: interpret calculated statistics <br> - ${ }^{2}$ interpret/communicate: <br> interpret calculated statistics | - Less weeds remain with Noweed or Noweed is a better weedkiller, etc. <br> - ${ }^{2} \quad$ Number of remaining weeds vary more with Noweed. |
| NOTES: <br> 1. <br> 2. | Answer must be consistent with answers to parts (a) <br> Do not accept <br> eg Weedclear's median is more <br> Noweed's range is more | (b) |


| Question No | Marking Scheme Give 1 mark for each - | Illustrations of evidence for awarding a mark at each • |
| :---: | :---: | :---: |
| 5 | Ans: $\mathbf{3 6} \mathbf{~ m p h}$ <br> - ${ }^{1}$ strategy/process: calculate distance on motorway | - ${ }^{1} 2 \times 68=136$ |
|  | $\bullet^{2} \quad$ strategy/process: find distance on other roads | - ${ }^{2} \mathrm{D}=54$ |
|  | - strategy: know how to find speed on other roads | - ${ }^{3} \mathrm{~S}=54 \div 1 \mathrm{~h} 30 \mathrm{~m}$ |
|  | - process: calculate speed | - ${ }^{4} 54 \div 1 \cdot 5=36$ |
|  |  | 4 marks |

## NOTES:

1. Answers without working
(a) 36
(b) 136
award 4/4
award 1/4 $\quad \checkmark \times \times \times$
2. For a final answer of 54
$\begin{array}{lll}\text { (a) } 54[190-136] & \text { award } 2 / 4 & \checkmark \checkmark \times x \\ \text { (b) } 54(2 & {[190 \div 3.5]} & \text { award } 1 / 4 \\ & \times \times \times \checkmark\end{array}$
(b) $54(\cdot 2 \ldots)[190 \div 3 \cdot 5]$ award $1 / 4 \quad \times \times \times \checkmark$
(c) 54 with no working award $1 / 4 \quad \times \times \times \checkmark$
3. Examples of answers (working must be shown)

| (a) | 42, 41(...) | [ $54 \div 1 \cdot 3$ ] | 3/4 (disregard incorrect rounding) |  | $\checkmark \checkmark \checkmark \times$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| (b) | $0 \cdot 6$ | [ $54 \div 90]$ | 3/4 | $\checkmark \checkmark \checkmark \times$ |  |
| (c) | 0.4... | [ $54 \div 130$ ] | 3/4 | $\checkmark \checkmark \checkmark \times$ |  |
| (d) | 81 | [ $54 \times 1.5$ ] | 3/4 | $\checkmark \checkmark \times \checkmark$ |  |
| (e) | 4860 | [54 $\times 90$ ] | 2/4 | $\checkmark \checkmark \times \times$ |  |
| (f) | $70(2)$ | [ $54 \times 1 \cdot 3$ ] | 2/4 | $\checkmark \checkmark \times \times$ |  |
| (g) | 7020 | [ $54 \times 130$ ] | 2/4 | $\checkmark \checkmark \times x$ |  |
| (i) | 81(3...) | [(190-68) $\div 1.5]$ | 3/4 | $\times \checkmark \checkmark \checkmark$ |  |
| (j) | 1-3(5...) | [(190-68) $\div 90$ ] | 2/4 | $\times \checkmark \checkmark \times$ |  |
| (k) | 94, 93( $\ldots$ ) | [(190-68) $\div 1 \cdot 3]$ | 2/4 | $\times \checkmark \checkmark \times$ |  |
| (1) | 1,09(...) | [(190-68) -130 ] | 2/4 | $\times \checkmark \checkmark \times$ |  |
| (m) | 183 | [(190-68) $\times 1 \cdot 5]$ | 2/4 | $\times \checkmark \times \checkmark$ |  |
| ( n ) | 10980 | [(190-68) $\times 90$ ] | 1/4 | $\times 2 \times \times$ |  |
| (o) | 159,158.6 | $[(190-68) \times 1 \cdot 3]$ | 1/4 | $\pm r \times x$ |  |
| (p) | 15860 | [(190-68) $\times 130$ ] | 1/4 | $\times \checkmark \times \times$ |  |
| (q) | 91, 90(...) | $[(68 \times 2) \div 1 \cdot 5]$ | 3/4 | $\checkmark \times \checkmark \checkmark$ |  |
| (r) | 127, 126(...) | [190 $\div \cdot 1 \cdot 5]$ | 2/4 | $\times \times \checkmark \checkmark$ |  |
| (s) | 34 | [68 $\div 2$ ] | 0/4 |  |  |

4. $4^{\text {th }}$ mark is not available for division by a whole number.

| $\begin{gathered} \hline \text { Question } \\ \text { No } \\ \hline \end{gathered}$ | Marking Scheme Give 1 mark for each • | Illustrations of evidence for awarding a mark at each - |
| :---: | :---: | :---: |
| 6 | Ans: 77 <br> - ${ }^{1}$ strategy/process: find angle at centre of "beetles" sector <br> - ${ }^{2}$ strategy: know how to find number of beetles <br> - ${ }^{3}$ process: find number of beetles | - 126 <br> - $\frac{126}{360} \times 220$ <br> -3 $\quad 77$ 3 marks |
|  | Alternative Strategy <br> - ${ }^{1}$ strategy: know to calculate $220 \text { - (flies + ants + spiders) }$ <br> - ${ }^{2}$ strategy: know how to find number of flies, ants and spiders <br> - ${ }^{3}$ process: find number of beetles | - ${ }^{1} \quad 220-($ flies + ants + spiders $)$ <br> - ${ }^{2}$ flies $=220 \div 2$, ants $=220 \div 10$, spiders $=$ ants $\div 2$ or equivalent <br> - ${ }^{3} \quad 77$ |
| NOTES: <br> 1. <br> 2. <br> 3. <br> 4. | Correct answer without working <br> 143 [flies + ants + spiders] (no working nece <br> $57\left[{ }^{126} / 220 \times 100\right] \quad$ (no working neces <br> $1 / 3$ of $220=73(\cdot 3 \ldots)$ |   <br>   <br> ary)  <br> award $3 / 3$  <br> award $2 / 3$  <br> award $1 / 3$  <br> award $0 / 3$  |


| Question No | Marking Scheme Give 1 mark for each • | Illustrations of evidence for awarding a mark at each • |
| :---: | :---: | :---: |
| 7 | Ans: 117 cm <br> - strategy: correct form of Pythagoras Theorem <br> - 2 process: calculate sum of two squares <br> - ${ }^{3}$ process: calculate square root of sum (or difference) of two squares <br> - ${ }^{4}$ strategy/process: add 20 to previously calculated value | - ${ }^{1} \quad 80^{2}+55^{2}$ <br> - ${ }^{2} \quad 9425$ <br> (the only cases where this mark is available for calculating the difference of two squares are shown in notes 2 a and 3 b ) <br> - 3 ( $97(\cdot 08 \ldots$...) <br> (correctly rounded or truncated) <br> - ${ }^{4} \quad 117$ |
| NOTES: <br> 1. | me common answers (no working necessary) $117$ <br> 97 | $\checkmark \checkmark \checkmark x$ |

2. Some common answers (working must be shown) where correct horizontal distance of 80 is used
(a) $\quad 78(\cdot \ldots) \quad\left[\sqrt{ }\left(80^{2}-55^{2}\right)+20\right]$
$3 / 4 \times \checkmark \checkmark \checkmark$
(b) $\quad 156(\cdot \ldots) \quad\left[\sqrt{ }\left(80^{2}+110^{2}\right)+20\right]$
$3 / 4 \times \checkmark \checkmark \checkmark$
(c) $95(\cdot \ldots)$
$\left[\sqrt{ }\left(110^{2}-80^{2}\right)+20\right]$
$2 / 4 \quad \times \times \checkmark \checkmark$
3. Some common answers (working must be shown)
where incorrect horizontal distance of $80+20=100$ is used
[ $4^{\text {th }}$ mark is unavailable since 20 has been added inappropriately]

| (a) | $114(\cdot \ldots)$ | $\sqrt{ }\left(100^{2}+55^{2}\right)$ | $3 / 4$ | $\checkmark \checkmark \checkmark \times$ |
| :--- | :--- | :--- | :--- | :--- |
| (b) | $84,83(\cdot \ldots)$ | $\sqrt{ }\left(100^{2}-55^{2}\right)$ | $2 / 4$ | $\times \checkmark \checkmark \times$ |
| (c) | $149,148(\cdot \ldots)$ | $\sqrt{ }\left(100^{2}+110^{2}\right)$ | $2 / 4$ | $\times \checkmark \checkmark \times$ |
| (d) | $46,45(\cdot \ldots)$ | $\sqrt{ }\left(110^{2}-100^{2}\right)$ | $1 / 4$ | $\times \times \checkmark \times$ |

4. Award of first 2 marks if trigonometry is used:
(a) $55 \div \sin \left(\tan ^{-1}(55 / 80)\right)$ or $80 \div \cos \left(\tan ^{-1}(55 / 80)\right) \quad$ award marks $1 \& 2$
(b) eg $110 \div \sin \left(\tan ^{-1}(110 / 80)\right)$
award 1 of the first 2 marks

| Question No | Marking Scheme Give 1 mark for each • | Illustrations of evidence for awarding a mark at each • |
| :---: | :---: | :---: |
| 8 | Ans: $\mathbf{3 6 0}$ grams <br> - ${ }^{1}$ strategy: know to calculate volume <br> - 2 process: calculate volume <br> - ${ }^{3}$ strategy: know to use proportion <br> -4 strategy: carry out calculations correctly | - $10 \times 10 \times 3$ <br> - ${ }^{2} 300$ <br> -3 $\frac{300}{400} \times 480$ or equivalent <br> - ${ }^{4} \quad 360$ |

1. Correct answer without working
award 4/4
2. Some common answers (no working necessary)
(a) $380 \quad[300+80]$
award 2/4 $\quad \checkmark \checkmark \times \times$
(b) 300
award 2/4 $\quad \checkmark \checkmark \times \times$
3. Some common answers (working must be shown)
(a) $300 \div(480 \div 400)=250$
award 3/4
$\checkmark \checkmark \times \checkmark$
(b) $300 \times(400 \div 480)=250$
award 3/4 $\quad \checkmark \checkmark \times \checkmark$
[Do not penalise premature rounding eg $400 \div 480=0 \cdot 8 \times 300=240$ ]
4. Alternative strategy
(a) $300+300 \div 5=360$ (no working necessary) award 4/4
(b) $300+300 \div 6=350$ (working must be shown) award 3/4 $\checkmark \checkmark \times \checkmark$

| Question No | Marking Scheme Give 1 mark for each • | Illustrations of evidence for awarding a mark at each • |
| :---: | :---: | :---: |
| 9 | Ans: $£ 183 \cdot 45$ <br> - ${ }^{1}$ interpret/process: find cost of tickets in euros <br> -2 strategy: know how to convert cost into sterling <br> - ${ }^{3}$ process: convert cost into sterling to the nearest penny | - ${ }^{1} \quad 255$ <br> - ${ }^{2} \quad 255 \div 1 \cdot 39$ <br> - ${ }^{3} \quad 183 \cdot 45$ |

## NOTES:

1. (a) Correct answer without working
(b) $354.45[255 \times 1.39]$ (no working necessary)
award $3 / 3$
award $1 / 3 \quad \checkmark \times x$
2. Alternative strategy

| - ${ }^{1}$ interpret/strategy: know how to convert valid number of euros into sterling | - ${ }^{1} \quad 90 \div 1 \cdot 39$ or $75 \div 1 \cdot 39$ or $180 \div 1 \cdot 39$ |
| :---: | :---: |
| - ${ }^{2}$ process: convert valid cost into sterling to the nearest penny | $\bullet^{2} \quad 90 \div 1 \cdot 39=64 \cdot 74$ or $64 \cdot 75$ or $\quad \begin{array}{r}75 \div 1 \cdot 39=53 \cdot 95 \text { or } 53 \cdot 96 \text { or } \\ 180 \div 1 \cdot 39=129 \cdot 49 \text { or } 129 \cdot 50\end{array}$ $180 \div 1 \cdot 39=129 \cdot 49$ or $129 \cdot 50$ |
| - ${ }^{3}$ interpret/strategy: find total cost of tickets in sterling | -3 $\quad 183.43$ or 183.44 or 183.45 or $183 \cdot 46$ |

3. Where working shows that candidate has used alternative strategy award $3 / 3$ for final answers of $183 \cdot 43,183 \cdot 44$ or $183 \cdot 46$

| $\begin{gathered} \hline \text { Question } \\ \text { No } \end{gathered}$ | Marking Scheme <br> Give 1 mark for each • | Illustrations of evidence for awarding a mark at each • |
| :---: | :---: | :---: |
| 10 | Ans: $y>20$ <br> - ${ }^{1}$ process: collect constants <br> - ${ }^{2}$ process: solve inequality for $y$ | -1 $\quad 1 / 2 y>10$ <br> - ${ }^{2} \quad y>20$ |

1. For answers without valid working award $1 / 2$
eg (i) $y>20$ without working
(ii) $1 / 2 \times 20+3>13 \rightarrow y>20$
2. Answers acceptable for partial credit (valid working must be shown)
(i) $1 / 2 y>10 \rightarrow>20$
(ii) $1 / 2 y>10 \rightarrow y=20$ or $1 / 2 y=10 \rightarrow y=20\} \quad$ award $1 / 2$
(iii) $1 / 2 y>16 \rightarrow y>32$

| Question No | Marking Scheme Give 1 mark for each • | Illustrations of evidence for awarding a mark at each • |
| :---: | :---: | :---: |
| 11 | Ans: 360 cm $^{2}$ <br> - ${ }^{1}$ strategy: use correct tangent ratio <br> - ${ }^{2}$ process: know how to solve equation <br> - ${ }^{3}$ process: carry out trig. calculation <br> - 4 strategy/process: calculate area of rectangle | - $\quad \tan 58^{\circ}=\frac{L}{15}$ <br> - $2 \quad \mathrm{~L}=15 \tan 58^{\circ}$ <br> - 34 <br> -4 $24 \times 15=360$ <br> 4 marks |
| NOTES: <br> 1. <br> 2. <br> 3. <br> 4. | Some answers without working <br> (a) 360 <br> award 4/4 <br> (b) 24 <br> award 3/4 <br> $1,874(\cdot \ldots)$ (radians used) award 4/4 <br> $290(\cdot \ldots)$ (grad used) award 4/4 <br> Where an incorrect trig ratio is used, working sh possibility of awarding $3 / 4$. <br> [Do not penalise premature rounding] <br> (a) $15 \cos 58^{\circ} \times 15=119(\cdot \ldots)$ <br> (b) $15 \sin 58^{\circ} \times 15=191$ or $190(\cdot \ldots)$ <br> (c) $\tan 58^{\circ}=15 / \mathrm{L} \rightarrow\left(15 \div \tan 58^{\circ}\right) \times 15=1$ <br> (d) $\cos 58^{\circ}=15 / \mathrm{L} \rightarrow\left(15 \div \cos 58^{\circ}\right) \times 15=4$ <br> (e) $\sin 58^{\circ}=\frac{15}{15} \mathrm{~L} \rightarrow\left(15 \div \sin 58^{\circ}\right) \times 15=26$ <br> (f) $\tan 58^{\circ}={ }^{15} / \mathrm{L} \rightarrow\left(\tan 58^{\circ} \div 15\right) \times 15=1$. <br> (g) $\tan ^{-1}\left({ }^{58} / 15\right) \times 15=1132(\cdot \ldots)$ <br> $4^{\text {th }}$ mark is available for correctly multiplying previr | $\checkmark \checkmark \checkmark x$ <br> be followed through with the <br> usly calculated value by 15 |




| Question No | Marking Scheme Give 1 mark for each • | Illustrations of evidence for awarding a mark at each • |
| :---: | :---: | :---: |
| 14 | Ans: $63 \mathrm{~m}^{2}$ <br> - ${ }^{1}$ strategy: know to calculate area of semicircle <br> - ${ }^{2}$ strategy: substitute correct radius into area formula <br> - ${ }^{3}$ strategy: know to add area of triangle to area of semi-circle <br> - process: carry out all calculations correctly (must include a circle calculation involving either squaring or halving followed by an addition or a subtraction) | - $1 / 2 \pi r^{2}$ <br> - $2 \quad 1 / 2 \times \pi \times 5^{2}$ <br> - $\quad 1 / 2 \times \pi \times 5^{2}+1 / 2 \times 8 \times 6$ <br> -4 $63(\cdot 2699 \ldots)$ or $63(\cdot 25)$ <br> ( $\pi$ ) <br> (3-14) <br> 4 marks |
| NOTES: <br> 1. Co <br> 2. Be $3^{\text {rd }}$ eg <br> 3. So <br> (a) <br> (b) <br> (c) <br> (d) <br> (e) <br> (f) <br> (g) <br> (h) <br> (i) <br> (j) <br> (k) <br> (1) <br> (m) | rect answer without working <br> ware!!! <br> mark not available for adding $8+6+10=24$ to area <br> (i) $1 / 2 \times \pi \times 5^{2}+1 / 2 \times 8 \times 6=63$ <br> (ii) $1 / 2 \times \pi \times 5^{2}+8+6+10=63$ <br> (iii) $1 / 2 \times \pi \times 5^{2}+24=63$ <br> ne common answers (working must be shown) | award $0 / 4$ <br> $\begin{array}{ll}\text { of semi-circle } & \\ \text { award 4/4 } & \\ \text { award 3/4 } & \checkmark \checkmark \times \checkmark \\ \text { award 3/4 } & \checkmark \checkmark \times \checkmark\end{array}$ |

## TOTAL MARKS FOR PAPER 2

## TOTAL MARKS FOR PAPER 1 \& 2

