2004 Mathematics

Intermediate 1 – Units 1, 2 and 3

Finalised Marking Instructions

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.

Where a candidate has scored zero marks for any question attempted, "0" should be shown against the answer in the place in the margin.

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   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.

4   In certain cases an error will ease subsequent working. **Full** credit cannot be given for this subsequent work but **partial** credit may be given.

5   Accept answers arrived at by inspection or mentally, where it is possible for the answer to have been so obtained.

6   Do not penalise omission or misuse of units unless marks have been specifically allocated to units.

7   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.**

8   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.

9   In general do not penalise the same error twice in the one question.

10   Accept legitimate variations in numerical/algebraic questions.

11   Do not penalise bad form eg $\sin x° = 0.5 = 30°$.

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

13   Do not penalise inadvertent use of radians in trigonometry questions, provided its use is consistent within the question.

Mathematics – Intermediate 1: Paper 1, Units 1, 2 and 3 (non-calc)

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
1. (a)	**Ans: £69** •^{1} process: calculate 30% of 230	•^{1} 69 **1 mark**
NOTES:		
1. (b)	**Ans: 60** •^{1} process: calculate $\dfrac{4}{7}$ of 105	•^{1} 60 **1 mark**
NOTES:		
1. (c)	**Ans: 200** •^{1} process: calculate $380 - 20 \times 9$	•^{1} 200 **1 mark**
NOTES:		

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
2.	**Ans: £599** $\bullet^1$ strategy: correct method $\bullet^2$ process: carry out calculations correctly	$\bullet^1 \bullet^2$ 599 (award 1 for correct method or $12 \times 45 = 540$) **2 marks**

NOTES:

1. Correct answer with or without working   award 2/2

Question No	Marking Scheme	Illustrations
3.	**Ans: 12m^3** $\bullet^1$ strategy: know how to find volume of cuboid $\bullet^2$ process: multiply $4 \times 2 \cdot 5 \times 1 \cdot 2$ correctly	$\bullet^1$ $4 \times 2 \cdot 5 \times 1 \cdot 2$ $\bullet^2$ 12 **2 marks**

NOTES:

1. Correct answer with or without working   award 2/2

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
4. (a)	**Ans: $-1 \cdot 5$** •¹ strategy: know to order numbers •² process: find median	•¹ $\quad -5 \quad -4 \quad -3 \quad -3 \quad -2$ $\quad\quad -1 \quad 0 \quad 1 \quad 2 \quad 3$ •² $-1 \cdot 5$ **2 marks**

NOTES:

1.   Correct answer with or without working   award 2/2

Question No		
4. (b)	**Ans: 8** •¹ strategy: know how to find range •² process: find range	•¹ $\quad 3 - (-5)$ •² $\quad 8$ **2 marks**

NOTES:

1.   Correct answer with or without working   award 2/2
2.   -8 (no working necessary)   award 1/2

Question No		
4. (c)	**Ans: Invergow colder than Abergrange. Temperatures vary more in Invergow** •¹ interpret/communicate: interpret calculated statistics •² interpret/communicate: interpret calculated statistics	•¹ Invergow colder than Abergrange •² Temperatures vary more in Invergow **2 marks**

NOTES:

1.   Do not accept eg   The median is smaller in Invergow
                                           The range is bigger in Invergow

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
5.	**Ans: x = 6** •^{1} process: collect terms in x •^{2} process: collect constants •^{3} process: solve equation for x	•^{1} $3x$ •^{2} 18 •^{3} $x = 6$ **3 marks**

NOTES:

1.   For answers without valid working   award 0/3

   eg   (i) $x = 6$ without working
          (ii) $11 + 5 \times 6 = 2 \times 6 + 29 \rightarrow x = 6$

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

3.   Answers acceptable for partial credit (valid working must be shown)

   (i) $3x = 18 \rightarrow 6$
   (ii) $3x = 40 \rightarrow x = 13 \cdot 3$ …..   award 2/3
   (iii) $7x = 18 \rightarrow x = 2 \cdot 5$ …..
   (iv) $7x = 40 \rightarrow x = 5 \cdot 7$ …..   award 1/3

          (Disregard incorrect rounding)

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
6.	**Ans:**	

Carnation	Daffodil	Lily	Iris	Rose	Total Price
✓	✓			✓	£10·00
✓		✓		✓	£10·50
	✓	✓	✓		£10·50
	✓		✓	✓	£11·00
	✓	✓		✓	£12·00

•[1] interpret: interpret information

•[2] strategy: find some possibilities

•[3] strategy: find all possibilities

•[1] one correct combination

•[2] two more correct combinations

•[3] final two correct combinations

3 marks

NOTES:

1.   Allow one addition error or omission in total price column

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
7. (a)	**Ans: 3·9** •^{1} communicate: complete table •^{2} strategy: know how to find mean •^{3} process: correct division of total (Σfx)	•^{1} $\qquad$ 245 $\qquad\qquad$ 246 $\qquad$ Total $= 780$ •^{2} $780 \div 200$ •^{3} $3 \cdot 9$ **3 marks**

NOTES:

1. | Final answer | with working | without working |
   |---|---|---|
   | $3 \cdot 9$ | 3/3 | 2/3 |
   | $130 \,(780 \div 6)$ | 2/3 | 1/3 |

2. Award of 3rd mark eg $778 \div 6$
   (a) Accept $129 \, r \, 4$, $129 \cdot 7$, $129 \cdot 6$....
   (b) Do not accept $129 \cdot 4$, 130, 129

3. When candidate calculates mean in (b) then award 0/1 in (b) and all 3 marks for (a) are available.

Question No		
7. (b)	**Ans: 5** •^{1} interpret: identify mode	•^{1} $\quad$ 5 **1 mark**

NOTES:

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
8. (a)	**Ans: 5, 1, - 4** •^{1} process: calculate y •^{2} process: complete table	•^{1} 5 or -4 •^{2} 5, 1, -4 **2 marks**
8. (b)	**Ans: straight line graph of** $y = 3 - x$ •^{1} communicate: prepare to draw line •^{2} communicate: draw the line $y = 3 - x$	•^{1} all three points from the table plotted correctly •^{2} draw straight line through the three points (see note 2) **2 marks**

NOTES:

1. If the line $y = 3 - x$ is drawn   award 2/2

2. Where the three points plotted are consistent with table and are not collinear, the second mark is unavailable

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
9.	**Ans: 20** •^{1} process: interpret one billion •^{2} process: interpret 2×10^{10} •^{3} process: express 2×10^{10} in billions	•^{1} 1 000 000 000 •^{2} 20 000 000 000 •^{3} 20 **3 marks**

NOTES:

1. Correct answer without working   award 0/3

Question No	Marking Scheme	Illustrations
10.	**Ans: 15** •^{1} process: substitute into expression •^{2} process: correct multiplication involving negative •^{3} process: correct division involving negative	•^{1} $\dfrac{2\times-5\times6}{-4}$ •^{2} $2\times-5\times6=-60$ •^{3} 15 **3 marks**

NOTES:

1. ±15 without working   award 1/3
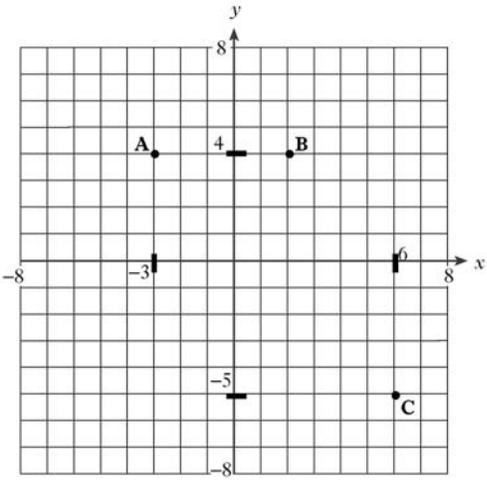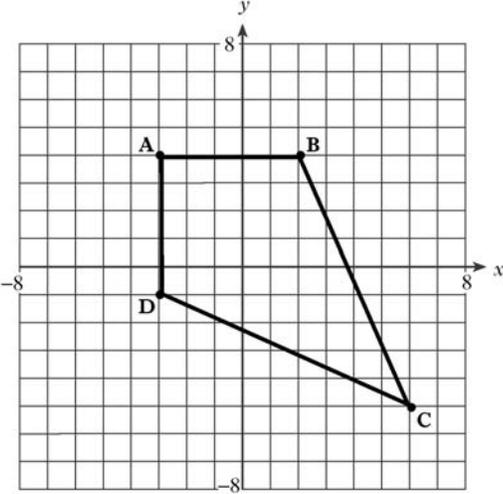
2. $\dfrac{2\times\pm5\times6}{\pm4}=\pm15$ (working must be shown)   award a minimum of 1/3

TOTAL MARKS FOR PAPER 1

33

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

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
1.	**Ans:** $\dfrac{10}{2000}$ •[1] process: find probability	•[1] $\dfrac{10}{2000}$ or equivalent **1 mark**

NOTES:

1.   Accept 10:2000, 10 out of 2000, 10 in 2000, $10 - 2000$, $0 \cdot 005$ or cancelled down versions of the above

2.   Do not penalise a correct answer followed by a cancelling error

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
2. (a)	**Ans:** •¹ communicate: plot point •² communicate: plot points	 •¹ plot A or C •² plot A, B and C **2 marks**
2. (b)	**Ans:** •¹ strategy: plot 4th vertex of kite •² communicate: state co-ordinates of D	 •¹ plot $(-3,-1)$ •² $(-3,-1)$ **2 marks**

NOTES:

1. Points need not be labelled
2. If a candidate consistently plots (y,x) instead of (x,y)
   (a) Plot A (4, -3), B (4, 2), C (-5, 6) award 1/2
   (b) Plot D (-1, -3) and write (-3, -1) award 2/2
3. Final mark is not available if D is in first quadrant
4. In (b) if (-3, -1) is written down but not plotted award 2/2

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
3.	**Ans: 48 mph** •¹ strategy: know how to find speed •² process: find time •³ process: find speed	•¹ $S = \dfrac{D}{T}$ •² 11h 30m •³ 48 **3 marks**

NOTES:

1. 48 without working   award 1/3
2. Examples of some common answers (working must be shown)
   (a) implied time = 11h 30m

      (i) $\dfrac{552}{11\cdot 5} = 48$ award 3/3

      (ii) $\dfrac{552}{11\cdot 3(0)} = 48\cdot 8....$ award 2/3   ✓ ✓ ✗

   (b) implied time = 11h 50m

      (i) $\dfrac{552}{11\cdot 83} = 46\cdot 6....$ award 2/3   ✓ ✗ ✓

      (ii) $\dfrac{552}{11\cdot 50} = 48$ award 1/3   ✓ ✗ ✗

3. Divisions which do not give a whole number answer must be rounded or truncated to at least one decimal place
   eg   implied time = 12h 30m

      (i) $\dfrac{552}{12\cdot 5} = 44\cdot 16$ or $44\cdot 2$ or $44\cdot 1$ award 2/3   ✓ ✗ ✓

      (ii) $\dfrac{552}{12\cdot 5} = 44$ award 1/3   ✓ ✗ ✗

      (iii) $\dfrac{552}{12\cdot 3(0)} = 44\cdot 8....$ or $44\cdot 8$ or $44\cdot 9$ award 1/3   ✓ ✗ ✗

4. 3rd mark is not available for division by whole number of hours
5. For award of 3rd mark assume answer is in mph unless units are stated

   eg $\dfrac{552}{690} = 0\cdot 8$ miles per minute   award 3/3

         $\dfrac{552}{690} = 0\cdot 8$ award 2/3

6. For S = DT the final 2 marks are available
   eg $552 \times 11\cdot 5 = 6348$ award 2/3

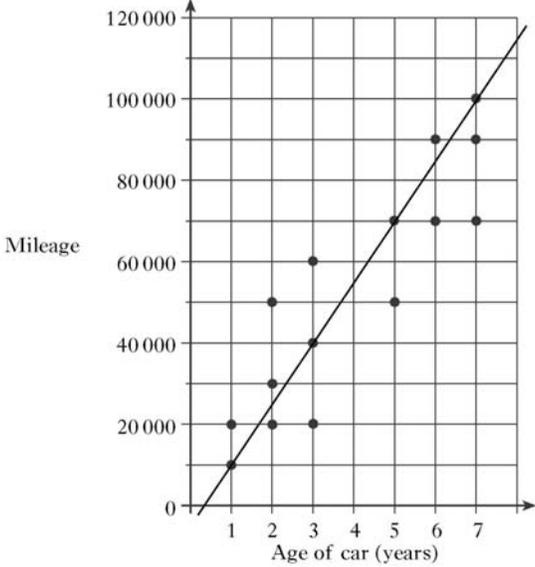| Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
4.	**Ans: $n < 5$** •^{1} process: collect constants •^{2} process: solve inequality for n	•^{1} $8n < 40$ •^{2} $n < 5$ **2 marks**

NOTES:

1. For answers without valid working   award 0/2

    eg   (i) $n < 5$ without working
             (ii) $8 \times 5 - 3 < 37 \rightarrow n < 5$

2. Answers acceptable for partial credit (valid working must be shown)
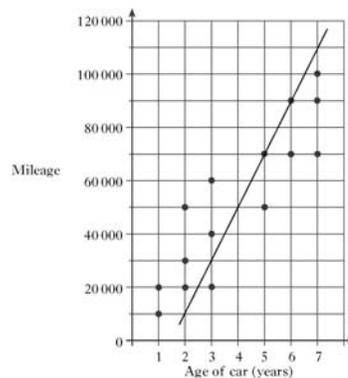
    (i) $8n < 40 \rightarrow\, < 5$
    (ii) $8n < 40 \rightarrow n = 5$ or $8n = 40 \rightarrow n = 5$ award 1/2
    (iii) $8n < 34 \rightarrow n < 4 \cdot 25$ or $n < \dfrac{17}{4}$

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
5. (a)	**Ans:** •^{1} communicate: draw line of best fit	•^{1} see answer **1 mark**

NOTES:

1. Accept straight lines with $5000 \leq$ gradient $\leq 20\,000$ <u>and</u> |(points above line) – (points below line)| ≤ 2

   eg
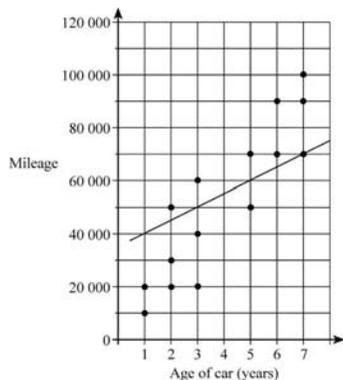
Question No		
5. (b)	**Ans: 55 000 miles** •^{1} interpret: interpret scattergraph	•^{1} 55 000 (± 2000) **1 mark**

NOTES:

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
6. (a)	**Ans: 8 + 3t** •^{1} process: multiply out brackets •^{2} process: collect like terms	•^{1} $8 - 2t + 5t$ or $8 - 2t$ •^{2} $8 + 3t$ **2 marks**
NOTES:		
6. (b)	**Ans: 5(2y - 7)** •^{1} process: identify common factor •^{2} process: factorise	•^{1} 5 or $2y - 7$ •^{2} $5(2y - 7)$ **2 marks**
NOTES:		
7.	**Ans: £36 000** •^{1} strategy: correct method •^{2} process: carry out calculations correctly	•^{1} •^{2} 36 000 (award 1 for correct method or $\dfrac{90}{2 \cdot 50} = 36$ or $\dfrac{1000}{2 \cdot 5} = 400$) **2 marks**
NOTES: 1. Correct answer with or without working award 2/2 2. 36,400 (no working necessary) award 1/2		

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
8. (a)	**Ans: £60** •^{1} strategy: know to use proportion •^{2} process: carry out calculations correctly	•^{1} •^{2} 60 (award 1 for correct method or $\frac{40}{16} = 2\cdot 5$ or $\frac{24}{16} = 1\cdot 5$) **2 marks**

NOTES:

1.   Correct answer with or without working   award 2/2

2. $2\cdot 5$, $1\cdot 5$ (no working necessary)   award 1/2

8. (b)	**Ans: 28·3 inches** •^{1} strategy: know to use right-angled triangle •^{2} strategy: correct form of Pythagoras Theorem •^{3} process: calculate square root of sum or difference of two squares	•^{1} evidence of use of 20 and 20 in right-angled triangle formula or in diagram •^{2} $20^2 + 20^2$ •^{3} 28(·28....) **3 marks**

NOTES:

1.   Disregard incorrect rounding for answers given to one or more decimal places

2.   (a)   28 without working (possible use of scale drawing)   award 0/3
     (b) $28\cdot 3$, $28\cdot 28$ ….. without working   award 3/3

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
9.	**Ans: Yes** **EITHER** **it costs €$39\cdot50$ in Scotland** **OR** **it costs £$25\cdot33$ (or £$25\cdot32$) in Spain** •^{1} strategy: know to convert £→€ (or €→£) •^{2} process: convert currency correctly •^{3} communicate: state conclusion and valid reason	**Method 1** •^{1} $25\cdot99\times1\cdot52$ •^{2} $39\cdot5048$ •^{3} Yes. It costs €$39\cdot50$ in Scotland **Method 2** •^{1} $38\cdot50\div1\cdot52$ •^{2} $25\cdot328$ ….. •^{3} Yes. It costs £$25\cdot33$ (or £$25\cdot32$) in Spain **3 marks**

NOTES:

1. Do not accept "Yes" without working/valid reason   award 0/3

2. Acceptable answers (no working necessary)
   (a)   Yes. It costs £$25\cdot33$ (or £$25\cdot32$)
       OR   Yes. It costs €$39\cdot50$ in Scotland   award 3/3
   (b)   Yes. It costs £$25\cdot328$....
       OR   Yes. It costs €$39\cdot5048$ in Scotland   award 2/3   ✓✓✗
   (c)   Yes. It costs €$39\cdot50$ award 2/3   ✓✓✗
   (d)   He saves 67p (or 66p) OR €1   award 3/3
   (e)   He saves £1   award 2/3   ✓✓✗
   (f)   It costs 67p (or 66p) or €1 more in Scotland   award 3/3
   (g)   It costs 67p (or 66p) or €1 more   award 2/3   ✓✓✗

3. Treat subtraction errors as insignificant.
   eg $25\cdot99-25\cdot33\rightarrow$ He saves 69p.   award 3/3

4. The final two marks are available for $17\cdot09$ ….. $(25\cdot99\div1\cdot52)$ or $58\cdot52$ $(38\cdot50\times1\cdot52)$
   followed by a consistent conclusion and valid reason

Question No	Marking Scheme Give 1 mark for each •		Illustrations of evidence for awarding a mark at each •	
10.	**Ans: 53°**			
	•^{1} strategy:	know to use right-angled triangle	•^{1}	use $1 \cdot 5$ and $0 \cdot 9$ in right-angled triangle diagram or formula
	•^{2} strategy:	know how to use cosine ratio	•^{2}	$\cos x° = \dfrac{0 \cdot 9}{1 \cdot 5}$
	•^{3} process:	calculate ratio	•^{3}	$\cos x° = 0 \cdot 6$
	•^{4} process:	carry out trigonometric calculation	•^{4}	$53 \cdot$ .....
				4 marks

NOTES:

1. Correct answer without working   award 3/4

2. Where an incorrect trig ratio is used, working should be followed through with the possibility of awarding 3/4 (working must be shown) eg

    (a) $\sin x = \dfrac{0 \cdot 9}{1 \cdot 5} \rightarrow x = 36 \cdot$ .... or 37   award 3/4   ✓ ✗ ✓ ✓

    (b)

    $\cos x = \dfrac{1 \cdot 5}{1 \cdot 8} \rightarrow x = 33 \cdot$ ..... or 34

    OR $\sin x = \dfrac{1 \cdot 5}{1 \cdot 8} \rightarrow x = 56 \cdot$ .....   award 3/4   ✗ ✓ ✓ ✓

    OR $\tan x = \dfrac{1 \cdot 5}{1 \cdot 5} \rightarrow x = 45$

    right angle need not be marked

3. Accept variations in answers due to rounding.

4.
	with working	without working
$0 \cdot 92$ ..... (radians used) OR $59 \cdot 03$..... (grads used)	4/4	3/4

Question No	Marking Scheme Give 1 mark for each •		Illustrations of evidence for awarding a mark at each •
11. (a)	**Ans: 3·25 %**		
	•[1] interpret:	interpret line graph	•[1] $3 \cdot 25$ or $3\frac{1}{4}$
			1 mark
11. (b)	**Ans: It went down**		
	•[1] interpret:	interpret trend in line graph	•[1] It went down
			1 mark

NOTES:

1. Disregard numerical errors in an otherwise correct answer

Question No	Marking Scheme		Illustrations of evidence
11. (c)	**Ans: £8·75**		
	•[1] interpret:	interpret line graph	•[1] $2 \cdot 5$
	•[2] •[3] strategy:	know how to calculate interest	•[2] •[3] $\dfrac{2 \cdot 5}{100} \times 1400 \times \dfrac{3}{12}$ (award 1 for an otherwise correct method with one missing or incorrect step)
	•[4] process:	carry out percentage and fraction calculations correctly	•[4] $8 \cdot 75$
			4 marks

NOTES:

1.

Final answers	with working	without working
$8 \cdot 75$	4/4	3/4
35 ($2 \cdot 5$% of 1400)	2/4	1/4
105 ($2 \cdot 5$% of 1400×3)	2/4	1/4

2. If <u>amount</u> is found ie $1408 \cdot 75$, a maximum of 3 marks is available unless candidate clearly indicates that <u>interest</u> $= 8 \cdot 75$

3. Do not penalise premature rounding or truncation
    eg $2 \cdot 5$% of $1400 = 35 \div 12 = 2 \cdot 91 \times 3 = £8 \cdot 73$ award 4/4

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
12.	**Ans: 9·3 …..** $\bullet^1$ process: substitute into formula $\bullet^2$ process: start to evaluate $\bullet^3$ process: complete evaluation	$\bullet^1$ $\sqrt{9\cdot81\times9}$ $\bullet^2$ $\sqrt{88\cdot29}$ $\bullet^3$ $9\cdot3$ ….. **3 marks**

NOTES:

1.   Do not penalise premature or incorrect rounding

2.

Final answers		with working	without working
(a)	$9\cdot4 , 9\cdot3$ …..	3/3	3/3
(b)	9	3/3	0/3
(c)	$28\cdot1$ ….. $\left(\sqrt{9\cdot81}\times9\right)$, $29\cdot43\left(9\cdot81\times\sqrt9\right)$	2/3	2/3
(d)	$4\cdot3$ …. $\left(\sqrt{9\cdot81}+9\right)$	2/3	2/3
(e)	$3\cdot1$ …. $\left(\sqrt{9\cdot819}\right)$	1/3	0/3

3.   (a) $\sqrt{9\cdot81\times9}=88\cdot29$ or $\sqrt{88\cdot29}$ award 2/3
     (b) $9\cdot81\times9=88\cdot29$ or $88\cdot29$ award 1/3

Question No	Marking Scheme	Illustrations of evidence
13.	**Ans: 45%** $\bullet^1$ strategy: know to express 18 as a fraction of 40 $\bullet^2$ strategy: know how to express $\dfrac{18}{40}$ as a percentage $\bullet^3$ process: divide and multiply correctly	$\bullet^1$ $\dfrac{18}{40}$ $\bullet^2$ $\dfrac{18}{40}\times100$ $\bullet^3$ 45 **3 marks**

NOTES:

1.   Correct answer without working   award 3/3
2.   Acceptable answers for partial credit (no working necessary)

    (a) $\dfrac{40}{18}\times100=222(\cdot ....)$ award 2/3   ✗ ✓ ✓

    (b) $\dfrac{40}{100}\times18$ or $\dfrac{18}{100}\times40=7\cdot2$ award 1/3   ✗ ✗ ✓

Question No	Marking Scheme Give 1 mark for each •	Illustrations of evidence for awarding a mark at each •
14.	**Ans: 1·46 m²**	
	•¹ strategy: know to calculate area of semi-circle	•¹ $A = \frac{1}{2}\pi r^2$
	•² strategy: substitute correct radius into area formula	•² $\frac{1}{2} \times \pi \times 0\cdot3^2$
	•³ strategy: know to subtract area of semi-circle from area of rectangle	•³ $(2 \times 0\cdot8) - \left(\frac{1}{2} \times \pi \times 0\cdot3^2\right)$
	•⁴ process: carry out all calculations correctly (must include a circle calculation and either the squaring of a number or a division by 2)	•⁴ 1·458 …..
	•⁵ process: round to 2 decimal places	•⁵ 1·46 **5 marks**

NOTES:

1. First 2 marks not available if $C = \pi d$ is used

2. Examples of some common answers   <u>with working</u>   <u>without working</u>

    (a) $1\cdot6 - \frac{1}{2} \times \pi \times 0\cdot3^2 = 1\cdot46$ award 5/5   award 4/5

    (b) $16000 - \frac{1}{2} \times \pi \times 30^2 = 14586\cdot28$ award 4/5   award 3/5

    (c) $1\cdot6 - \pi \times 0\cdot3^2 = 1\cdot32$ award 4/5   award 0/5

    (d) $1\cdot6 - \frac{1}{2} \times \pi \times 0\cdot6^2 = 1\cdot03$ award 4/5   award 0/5

    (e) $1\cdot6 - \pi \times 0\cdot6^2 = 0\cdot47$ award 3/5   award 0/5

    (f) $1\cdot6 - \frac{1}{2} \times \pi \times 0\cdot6 = 0\cdot66$ award 3/5   award 0/5

    (g) $1\cdot6 - \pi \times 0\cdot6 = -0\cdot28$ award 2/5   award 0/5

3. (a)   Unrounded or incorrectly rounded versions of the above answers should be awarded 1 mark less than those shown above.

    (b)   1·4 without working award 0/5.

4. 5th mark only available where candidate is required to round circle calculation to 2 decimal places

<div align="center">

TOTAL MARKS FOR PAPER 2
47

</div>