2011 Mathematics

Intermediate 1 Units 1, 2 & Applications Paper 1

Finalised Marking Instructions

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.

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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)
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- bad form, eg sin $x° = 0{\cdot}5 = 30°$
- 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 ✓ and × 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 ✓××✓' indicates that the 1st & 4th marks should be awarded but the 2nd & 3rd marks should not.

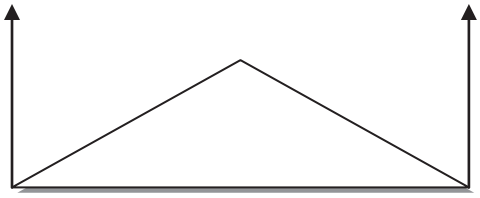
Part Two: Mathematics Intermediate 1: Paper 1, Units 1, 2 and Applications

Question			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 $^{5}/_{8}$ of 360: 225	1	
1	c		**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	1. Some common answers (no working necessary) (a) 25 award 2/2 (b) -26 [13 × (-2)] award 1/2 (c) 8 or -8 award 0/2 2. Some common answers **(working must be shown)** (a) 17 – 8 = 9 or 17 – 8 award 1/2 (b) -8 – 17 = -25 [4 × (-2) −17] award 1/2 (c) 8 – 17 = -9 [4 × (-2) −17] award 0/2 (d) 17 − 6 = 11 award 0/2 (e) 17 + 6 = 23 award 0/2

Question			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	1. Line PQ need not be drawn 2. Accept -1,-2 without brackets or (-1), (-2) 3. Where (2, -7) and (-6,5) are plotted in (a) then accept either (-2,-1) or (-1,-2) in (b)

Question			Expected Answer/s	Max Mark	Additional Guidance
5	**a**		**Ans: £4** •[1] know how to find cost of additional distance: 2 × 50(p) •[2] correctly add £3 to above: (£)3 + 2 × 50(p) = (£)4	**2**	1. (£)4 without working award 2/2 2. Some common answers (**working must be shown)** (a) 3 × (£)3 + 2 × 50(p) = (£)10 award 1/2 (b) (£)3 + 3 × 50(p) = (£)4·50 award 1/2 (c) 3 × (£)3 + 3 × 50(p) = (£)10·50 award 0/2 (d) (£)3 + 50(p) = (£)3·50 award 0/2
5	**b**		**Ans: 4500m** •[1] know to split £7 into £3 + 8×50p •[2] calculate distance: 500 + 8 × 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 × 500 = 4000 (ii) 500 + 7 × 500 = 4000 (iii) 500 + 9 × 500 = 5000 (b) If candidate uses £1 per 1000m, then allow **one** 1000 less or **one** 1000 extra (i) 4 × 1000 = 4000 (ii) 500 + 3 × 1000 = 3500 (iii) 500 + 5 × 1000 = 5500 (c) If candidate uses £1 per 500m, then £3 + 4 × £1 must be used 500 + 4 × 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			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(E2..E6)** •[1] state formula: AVERAGE(E2..E6)	1	1. Accept any punctuation mark or space between E2 and E6 2. Accept abbreviations for AVERAGE eg AV(E2..E6) 3. Accept SUM(E2..E6)/5 or (E2+E3+E4+E5+E6)/5 [must be / not ÷]

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	1. Accept 1cm to 25000m, 1cm to 2500000cm, 1:2500000, 1 box to 25km 2. 1cm to 25m or 1:25 award 1/2
7	b		**Ans:** •[1] one bearing shown correctly: (± 2º) •[2] second bearing shown correctly: (± 2º) •[3] point of intersection of two bearings shown	3	1. Where candidate has bearings above the horizontal only the third mark can be awarded for the point of intersection.  award 1/3 2. 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

Question			Expected Answer/s	Max Mark	Additional Guidance
8	**a**		**Ans: 15 minutes** •[1] find mode: 15	**1**	1. For an answer of 15 (a) without working, award 1/1 (b) with evidence of an incorrect method, award 0/1 eg 5, 10, 15, 20, 25 [median] 75 ÷ 5 = 15 ["mean"]
8	**b**		**Ans:** $^{7}/_{30}$ •[1] find probability: $^{7}/_{30}$	**1**	1. Accept 7:30, 7 out of 30, 7 in 30, 7-30, 0·23(3…), 23(·3…)%
8	**c**		**Ans: 16·5** •[1] complete table: 140 125 495 •[2] know to divide Σfx by 30: 495 ÷ 30 •[3] correctly divide Σfx by 30: = 16·5	**3**	1. Award of 1st mark: 140, 125 and 495 need not appear in table but must be shown in working 2. 2nd mark may only be awarded for attempting ∑fx ÷ 30 3. **Answer** / **With evidence for 1st mark** / **Without evidence for 1st mark** 16·5 — 3/3✓✓✓ — 2/3 ×✓✓ 99 [495 ÷ 5] — 1/3 ✓×× — 0/3 495 ÷ 3 × 10 [= 1650] — 2/3 ✓✓× — 1/3 ✓××

Question			Expected Answer/s	Max Mark	Additional Guidance
9			**Ans:** **105 / 80 / 55 / 50 / 30 / Total** ✓ / / ✓ / / ✓ / **190** ✓ / / / ✓ / ✓ / **185** / ✓ / ✓ / / ✓ / **165** / ✓ / / ✓ / ✓ / **160** / / ✓ / ✓ / ✓ / **135** •[1] complete one row correctly •[2] complete another two rows correctly •[3] complete final two rows correctly	**3**	1. 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**	1. 4 without working award 2/2 2. (a) $26 \div 6 = 4(\cdot...) = 4$ award 0/2 (b) $26 \div 5 = 5(\cdot...)$ then an answer of 4 award 2/2 3. Alternative strategy: •[1] two trials where second is better than first: •[2] find hidden number: 4 4. Answer may appear on hidden card

TOTAL MARKS FOR PAPER 1

30

[END OF MARKING INSTRUCTIONS]

2011 Mathematics

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

Question			Expected Answer/s	Max Mark	Additional Guidance
1			**Ans: 50 minutes** •[1] find number of calories per minute: $160 \div 20 = 8$ •[2] find time: $400 \div 8 = 50$	**2**	1. Correct answer without working award 2/2 2. Alternative strategies (a) •[1] $20 \div 160 = 0{\cdot}125$ •[2] $0{\cdot}125 \times 400 = 50$ (b) •[1] $400 \div 160 = 2{\cdot}5$ •[2] $2{\cdot}5 \times 20 = 50$ (c) •[1]•[2] eg 160 20 160 20 80 10 400 50 [In this case award 1/2 for correct strategy with **one** error.]
2			**Ans: £1129·92** •[1] find monthly payment: 47·08 •[2] find total payment: $47{\cdot}08 \times 24 = 1129{\cdot}92$	**2**	1. Correct answer without working award 2/2 2. Some common answers (no working necessary) (a) 2129.92 [1129.92 + 1000] award 1/2 (b) 129.92 [1129.92 – 1000] award 1/2 (c) 94.16 [47.08 × 2] award 1/2 (d) 1047.08 [47.08 + 1000] award 1/2 (e) 952.92 [1000 – 47.08] award 1/2

Question			Expected Answer/s	Max Mark	Additional Guidance
3			**Ans: 150 cm^2** •^{1} know how to find total area of rectangular faces: $5 \times 7 + 8 \times 7 + 5 \times 7$ or equivalent •^{2} know how to find area of a triangular face: $\frac{1}{2} \times 8 \times 3$ •^{3} calculate total surface area: 150	**3**	1. Correct answer without working award 3/3 2. The final mark can only be awarded for the addition of 5 calculations, except in notes 3 and 4 below. 3. Where both triangles are calculated correctly as 1 rectangle, calculation leading to 150 award 3/3 4. Where both triangles are calculated as 1 rectangle calculation using incorrect sides then working can be followed through to award the final mark **only** in the following cases. (a) 147 [$3 \times 7 + 126$] award 2/3 (b) 141 [$3 \times 5 + 126$] award 2/3 (c) 135 [$3 \times 3 + 126$] award 2/3

Question			Expected Answer/s	Max Mark	Additional Guidance
4	**a**		**Ans: 1 hour 15 minutes** •[1] interpret graph: 1 hour 15 minutes (or equivalent)	**1**	
4	**b**		**Ans: 80 mph** •[1] know how to find speed: $S = {}^{D}/_{T}$ •[2] interpret graph: D = 300, T = 3h45m •[3] calculate speed: 300 ÷ 3·75 = 80	**3**	1. Correct answer without working award 3/3 2. Some common answers (no working necessary, rounding or truncation is acceptable) (a) 300 ÷ 3·45 = 87, 86(·9…) award 2/3 ✓✓× (b) 300 ÷ 225 = 1·3(…) award 2/3 ✓✓× (c) 300 × 3·75 = 1125 award 2/3 ×✓✓ (d) 300 × 3·45 = 1035 award 1/3 ×✓× (e) 300 × 225 = 67500 award 1/3 ×✓× 3. Where **time is only given in decimal form** then 3rd mark is only available for division (or multiplication) by: 4.75 (Jack's arrival time), 3.5 (Jill's arrival time), 2.75 (Jill's departure time), 1.75 (difference of J&J's starting times), 1.25 (answer to part a), 0.75 (Jill's journey time). ie 300 ÷ 4.75 = 63 ✓×✓ 300 × 0.75 = 225 ××✓ 300 ÷ 2.5 = 120 ✓×× However, 2h30 m leading to 300 ÷ 2.5 = 120 ✓×✓ 4. 3rd mark is not available for division by a whole number.

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5			**Ans: £210** •[1] find cost of letters (per shirt) $4 \times 0.15 = 60$ (p) •[2] find cost of 25 shirts $25 \times (9 + 0.60) = 240$ •[3] find discounted cost $0.125 \times 240 = 210$	**3**	1. Correct answer without working award 3/3 2. Common answers, **working must be shown** (a) 8.40 [87.5% of 9.60] award 2/3 (b) 236.25 [12 letters × 15p …..] award 2/3 (c) 196.87 (.88) [87.5% of 225] award 2/3 (d) 225.60 [225 + 60p] award 1/3 (e) 197.40 [87.5% of 225.60] award 2/3 3. For award of the final mark answers must be rounded or truncated to the nearest penny.
6			**Ans: 18 minutes** •[1] know how to find volume of tank: $90 \times 60 \times 50$ •[2] know how to find volume in litres: $(90 \times 60 \times 50) \div 1000$ •[3] know how to find time: $[(90 \times 60 \times 50) \div 1000] \div 15$ •[4] calculate [(volume) ÷ 1000] ÷ 15 = 18	**4**	1. Correct answer with no working award 4/4 2. Some common answers **(working must be shown)** (a) $270000 \div 15 \div 60 = 300$ ✓×✓× award 2/4 (b) $270000 \div 1000 \div 60 = 4.5$ ✓✓×× award 2/4 (c) $[(90 + 60 + 50) \div 1000] \div 15 = 0.013$ ×✓✓✓ award 3/4

Question			Expected Answer/s	Max Mark	Additional Guidance
7	a		**Ans: 3698** •[1] find 'Liberal' angle: 43 •[2] know how to find number of Liberal votes: $^{43}/_{360} \times 30960$ **or** $^{30960}/_{360} \times 43$ **or** $43 \div (360 \div 30960)$ •[3] find number of Liberal votes: 3698	3	1. Correct answer without working award 3/3 2. 27262 [$^{317}/_{360} \times 30960$] award 2/3 ×✓✓ (no working necessary) 3. A common answer (working must be shown) 43% of 30960 = 13312(·8), 13313 award 1/3 ✓×× 4. Do not award third mark where premature rounding results in wrong answer eg $^{43}/_{360} \times 30960 = 0{\cdot}12 \times 30960 = 3715(\cdot 2)$ award 2/3 ✓✓×
7	b		**Ans: In the by-election** **more voted SNP** **fewer voted Labour** **more voted Liberal** •[1] state any **one** of the above **differences** •[2] state **another one** of the above **differences**	2	1. Disregard invalid statements. eg SNP increased ✓ Labour decreased ✓ Liberal decreased × award 2/2 2. Disregard incorrect numerical references. eg SNP gained 70º Labour lost 90º award 2/2 3. Some common answers (a) Labour lost votes to SNP award 2/2 (b) In 2005 Labour had much more than SNP, but in 2008 they were close to each other. award 1/2

Question	Expected Answer/s	Max Mark	Additional Guidance
8	**Ans: £994·39 or £994·40** •[1] calculate 800 × 1·33 correctly: 1064 •[2] know to calculate 1064 ÷ 1·07: •[3] divide correctly and round to nearest (appropriate) penny: 994·39 or 994·40	**3**	1. Correct answer without working award 3/3 2. The third mark is only available where the answer to the division has to be rounded or truncated to the nearest penny 3. For £994·4 ✓✓× award 2/3 4. Some common answers. (no working necessary) (a) 1064 leading to 747.66 award 1/3 (b) 747.66 (800 ÷ 1.07) award 1/3 (c) 601.50 (800 ÷ 1.33) award 1/3 (d) (1064 – 856) ÷ 1.07 = 194.39 award 2/3 (e) (800 ÷ 1·33) × 1·07 = 643·61 or 643·60 award 2/3 5. A common answer. (**working must be shown)** 994.39 – 800 = 194.39 award 3/3
9	**Ans: 7·5 m** •[1] correct form of Pythagoras Theorem: $4{\cdot}5^2 + 2{\cdot}4^2$ •[2] calculate sum (or difference) of squares: 26·01 •[3] calculate the square root of a calculated value: 5·1 •[4] calculate height: 5·1 + 2·4 = 7·5	**4**	1. Correct answer without working award 4/4 2. Some common answers (working must be shown) (a) 6·2(….) $[\sqrt{(4{\cdot}5^2 - 2{\cdot}4^2) + 2{\cdot}4)}]$ ×✓✓✓ award 3/4 (b) 3·8(….) $[\sqrt{(4{\cdot}5^2 - 2{\cdot}4^2)}]$ ×✓✓× award 2/4 3. Example of alternative strategy involving trigonometry •[1] $a° = \tan^{-1}({}^{2{\cdot}4}/_{4{\cdot}5}) = 28.07°$…… •[2] $\cos 28{\cdot}07° \ldots\ldots = {}^{4{\cdot}5}/_{x}$ •[3] $x = {}^{4{\cdot}5}/_{\cos 28{\cdot}07° \ldots.}$ = 5·1 •[4] height = 5·1 + 2·4 = 7·5 4. Do not penalise inadvertent use of radians or grads if trigonometry is used 5. Mark 4 can be awarded for adding 2.4 on to a **previously calculated** value

Question			Expected Answer/s	Max Mark	Additional Guidance
10			**Ans: £35** $\bullet^1\bullet^2$ know how to calculate interest: $^{7\cdot5}/_{100} \times 1400 \times {}^{4}/_{12}$ (award 1 for $^{7\cdot5}/_{100} \times 1400$ or $^{4}/_{12} \times {}^{7\cdot5}/_{100}$ or $^{4}/_{12} \times 1400$) $\bullet^3$ carry out percentage and fraction calculations correctly: 35	**3**	1. Correct answer without working award 3/3 2. If answer is 1435 [1400 + 35] (no working necessary) (a) award 3/3 if candidate **states** that interest is 35 (b) award 2/3 if candidate does **not state** that interest is 35 3. Acceptable answers for partial credit (no working necessary) (a) 105 [7·5% of 1400] award 1/3 (b) 2·5 [$^{4}/_{12} \times 7\cdot5$] award 1/3 (c) 466·67 or 466·66 [$^{4}/_{12} \times 1400$] award 1/3 (d) 420 [105 × 4] award 1/3 4. The following common wrong answers illustrate where the 3rd mark is available to candidates, working must be shown. (a) $1400 \times {}^{100}/_{7.5} \times {}^{4}/_{12} = 6222.22$ × ✓✓ (note: answer must be rounded or truncated to nearest penny) (b) $1400 \div 7.5 \times {}^{4}/_{12} = 62.22$ × ✓× (c) $1400 \times {}^{7.5}/_{100} \times {}^{12}/_{4} = 315$ ✓×✓ (d) $1400 \times 0.75 \times {}^{12}/_{4} = 3150$ ××✓

Question			Expected Answer/s	Max Mark	Additional Guidance
11			**Ans: £1·75 worse off** •[1] find current Saturday pay: $7 \times 1{\cdot}5 \times 8 = 84$ •[2] find current pay: $4 \times 7 \times 8$ + Saturday pay = 308 •[3] find new pay: $5 \times 7 \times 8{\cdot}75 = 306{\cdot}25$ •[4] state conclusion: £1·75 worse off	**4**	1. Correct answer without working award 4/4 2. Evidence for the award of second mark Accept $224 + 28\ (7 \times 0{\cdot}5 \times 8) = 252$ Do **not** accept (a) $24 + 12\ (1{\cdot}5 \times 8) = 236$ (b) $224 + 10.5(1.5 \times 7) = 245.5(0)$ (c) $(224 \times 1.5) = 336$ 3. Where the wrong number of days has been used (a) Where **only 1 day** has been used, follow through working with the possibility of awarding 2/4. eg Current = $7 \times 1{\cdot}5 \times 8 = 84$ ✓× New pay = $7 \times 8.75 = 61.25$ × Worse off by 22.75 ✓ (b) Where any other incorrect number of days have been used, follow through working with the possibility of awarding 3/4. eg Current = $5 \times 56 + 84 = 364$ ✓× New pay = $6 \times 61.25 = 367.50$ ✓ Better off by 3.50 ✓ 4. Award 3rd mark for 306.25 **irrespective** of number of days used for current pay. 5. For award of 4th mark, candidate must state worse/better (or equivalent) **and** by how much.

Question			Expected Answer/s	Max Mark	Additional Guidance
12	**a**		**Ans: 7** •[1] identify Q_1 and Q_3: 15 and 22 •[2] calculate interquartile range: 7	**2**	1. Correct answer without working award 2/2 2. The second mark is available for correctly subtracting any pair of numbers from the Craigtown boxplot. eg 26 – 12 = 14 (range) award 1/2 3. Some common answers (working must be shown) (a) ½ (22 − 15) = 3·5 (SIQR) award 1/2 (b) 23 − 18 = 5 (Scottsburgh IQR) award 1/2
	b		**Ans: Scottsburgh has a higher median and a smaller interquartile range** •[1] interpret boxplot: Scottsburgh has a higher median •[2] interpret boxplot: Scottsburgh has a smaller interquartile range	**2**	1. Award of 1st mark (a) accept eg (i) Scottsburgh is 21 and Craigtown is 18 (ii) Scottsburgh's box is higher (b) do not accept eg Scottburgh's boxplot is higher 2. Award of 2nd mark (a) accept eg Scottsburgh's box is smaller (b) do not accept eg Scottsburgh's boxplot is smaller

Question			Expected Answer/s	Max Mark	Additional Guidance
13			**Ans: 36% (See Note 1)** •[1] find loss: 45 •[2] know to express loss as a fraction of 125: $^{45}/_{125}$ •[3] know to multiply fraction by 100: $^{45}/_{125} \times 100$ •[4] carry out all calculations correctly: 36	**4**	1. Correct answer without working award 2/4 **Be aware $^{45}/_{100} \times 80 = 36$ award 2/4 ✓××✓** **When the only working is 45 and 36 award 2/4 ✓××✓** 2. 4th mark is only available for calculations of the form $^{a}/_{b} \times c$ where a,b,c = calculated loss or 125 or 80 or 100. 3. Some common answers (working must be shown) (a) (i) 56(·25) [$^{45}/_{80} \times 100$] award 3/4 ✓×✓✓ (ii) 56(·25) [$^{45}/_{100} \times 125$] award 2/4 ✓××✓ **When the only working is 45 and 56(.25) award 2/4 ✓××✓** (b) 64 [$^{80}/_{125} \times 100$] award 3/4 ×✓✓✓ (c) 178, 177(·7…) [$^{80}/_{45} \times 100$] award 3/4 ✓×✓✓ (d) 156(·25) [$^{125}/_{80} \times 100$] award 2/4 ××✓✓ (e) 100 [$^{80}/_{100} \times 125$ or $^{125}/_{100} \times 80$] award 1/4 × ××✓

Question			Expected Answer/s	Max Mark	Additional Guidance
14			**Ans: 5·2 cm^2** •^{1} know to calculate area of semi-circle: $\frac{1}{2}\pi r^2$ •^{2} substitute correct radius into formula: $\frac{1}{2} \times \pi \times 1{\cdot}4^2$ •^{3} know to add area of triangle to area of semi-circle: $\frac{1}{2} \times \pi \times 1{\cdot}4^2 + \frac{1}{2} \times 2{\cdot}8 \times 1{\cdot}5$ •^{4} carry out all calculations correctly: $3{\cdot}07\ldots + 2{\cdot}1 = 5{\cdot}17\ldots$. (must include a circle calculation **followed by** an addition) •^{5} round to one decimal place: 5·2	**5**	1. Correct answer without working award 0/5 2. **Some** common answers (working must be shown) (a) 8·3 [$\pi \times 1{\cdot}4^2 + \frac{1}{2} \times 2{\cdot}8 \times 1{\cdot}5$] award 4/5 ×✓✓✓✓ (b) 7·3 [$\frac{1}{2} \times \pi \times 1{\cdot}4^2 + 2{\cdot}8 \times 1{\cdot}5$] award 4/5 ✓✓×✓✓ (c) 14·4 [$\frac{1}{2} \times \pi \times 2{\cdot}8^2 + \frac{1}{2} \times 2{\cdot}8 \times 1{\cdot}5$] award 4/5 ✓×✓✓✓ (d) 6·5 [$\frac{1}{2} \times \pi \times 2{\cdot}8 + \frac{1}{2} \times 2{\cdot}8 \times 1{\cdot}5$] award 4/5 ×✓✓✓✓ (e) 4·3 [$\frac{1}{2} \times \pi \times 1{\cdot}4 + \frac{1}{2} \times 2{\cdot}8 \times 1{\cdot}5$] award 3/5 ××✓✓✓ (f) 3·1 [$\frac{1}{2} \times \pi \times 1{\cdot}4^2$] award 3/5 ✓✓××✓ (g) 6·2 [$\pi \times 1{\cdot}4^2$] award 2/5 ×✓××✓ (h) 4·4 [$\frac{1}{2} \times \pi \times 2{\cdot}8$] award 2/5 ×✓××✓ (i) 8·8 [$\pi \times 2{\cdot}8$] award 2/5 ×✓××✓ (j) 2·2 [$\frac{1}{2} \times \pi \times 1{\cdot}4$] award 1/5 ××××✓ 3. (a) 5th mark is only available where the final answer or answer to circle calculation requires rounding. (b) Where premature rounding leads to incorrect answer, a maximum of 4/5 is available eg triangle = (½ × 1·4 × 1·5) × 2 = 1·05 × 2 = 1·1 × 2 total area = 2·2 + 3·1 = 5·3

TOTAL MARKS FOR PAPER 2
50

TOTAL MARKS FOR PAPER 1 & 2
80

[END OF MARKING INSTRUCTIONS]