2014 Mathematics

Intermediate 1 Units 1, 2 & 3 Paper 2

Finalised Marking Instructions

Part One: General Marking Principles for Mathematics Intermediate 1 Units 1, 2 & 3
Paper 2

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.

1. Marks for each candidate response must always be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question.

2. Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.

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)
- omission or misuse of units (unless marks have been specifically allocated for the purpose in the Marking Instructions)
- 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 2, Units 1, 2 and 3

Question			Expected Answer/s	Max Mark	Additional Guidance
1			**Ans: 875 ml** •[1] find number of ml per orange: $500 \div 8 = 62{\cdot}5$ •[2] find amount of juice: $62{\cdot}5 \times 14 = 875$	**2**	1. Correct answer without working award 2/2 2. Alternate strategies (a) •[1] $14 \div 8 = 1{\cdot}75$ •[2] $1{\cdot}75 \times 500 = 875$ (b) •[1] $14 \div (8 \div 500)$ •[2] $14 \div 0{\cdot}016 = 875$ [$8 \div 500$ is not enough for the 1st mark]
2			**Ans: $1{\cdot}3 \times 10^{-5}$** •[1] correct coefficient: $1{\cdot}3$ •[2] correct power of ten: $1{\cdot}3 \times 10^{-5}$	**2**	1. The second mark can be awarded for a consistent power of ten eg 13×10^{-6} 2. 13×10^{-5} award 0/2
3			**Ans: $u < 13$** •[1] collect constants: $5u < 65$ •[2] solve inequality for u: $u < 13$	**2**	1. For answers without valid working award 1/2 eg (a) $u < 13$ without working ×✓ (b) $5 \times 13 + 21 < 86 \rightarrow u < 13$ ×✓ (c) $5u = 65 \rightarrow u < 13$ ×✓ 2. Answers acceptable for partial credit (valid working must be shown) award 1/2 (a) $5u < 65 \rightarrow < 13$ ✓× (c) $5u < 65 \rightarrow u = 13$ ✓× (d) $5u = 65 \rightarrow u = 13$ ✓× (e) $5u < 107 \rightarrow u < 21{\cdot}4$ ×✓

Question			Expected Answer/s	Max Mark	Additional Guidance
4	**a**		**Ans:** **2 | 789** **3 | 012346689** **4 | 12456** **5 | 034** **6 | 2** •[1] stem correct: •[2] all leaves on correct level: •[3] leaves ordered correctly	**3**	1. Accept (a) use of commas as bad form (b) stem in descending order (c) no line drawn between stem and leaves (d) extra numbers in the stem 2. Final mark is not available where there are more than two errors in the unordered diagram
4	**b**		**Ans: 38 mpg** •[1] find median: 38	**1**	Ensure 4b is consistent with 4a
4	**c**		**Ans: 35 mpg** •[1] find range: 35	**1**	Range may be calculated from original data **or** using candidate's answer in 4a

Question			Expected Answer/s	Max Mark	Additional Guidance
5	**a**		**Ans: $7x + 12y$** •[1] multiply out bracket: $12y - 6x$ •[2] collect like terms: $7x + 12y$	**2**	1. Correct answer without working award 2/2 2. 2nd mark is not available if there is invalid subsequent working e.g. $7x + 12y \rightarrow 19xy$ award 1/2✓×
5	**b**		**Ans: $7(2 - 9g)$** •[1] identify common factor: 7 or $2 - 9g$ •[2] factorise: $7(2 - 9g)$	**2**	Some common answers $14(1 - 4{\cdot}5g)$, $2(7 - 31{\cdot}5g)$ award 1/2×✓
6			**Ans: 297** •[1] know to multiply l×b×h: evidence of l×b×h involving 60, 45 and 1·1 •[2] find volume in cm^3: $60 \times 45 \times 110 = 297\,000$ •[3] find volume in litres: $297\,000 \div 1000 = 297$	**3**	1. Correct answer without working award 3/3 2. Some common answers [working must be shown] (a) 2·97 [(60×45×1·1)÷1000] award 2/3 ✓×✓ (b) 29·7 [(60×45×11)÷1000] award 2/3 ✓×✓ (c) 2970 [(60×45×1100)÷1000] award 2/3 ✓×✓ (d) 2970 [(60×45×1·1)] award 1/3 ✓×× (e) 2 litres 970ml award 1/3 ✓×× 3. **Special cases**: V = l + b + h [working must be shown] (a) 0·215 [(60+45+110)÷1000] award 2/3 ×✓✓ (b) 0·1061 [(60+45+1·1)÷1000] award 1/3 ××✓

Question			Expected Answer/s	Max Mark	Additional Guidance
7			**Ans: 0135 or 1.35am** •[1] know how to find driving time: 351 ÷ 52 •[2] find driving time: 6h45m •[3] find journey time: 6h45m + 2×40 = 8h5m •[4] find arrival time: 1730 + 8h5m = 0135	**4**	1. Correct answer without working award 4/4. 2. Minimum requirement for 4th mark: correctly add a time involving hours and minutes to 1730 3. Some common answers (no working necessary) 2535, 1335 or 1.35pm award 3/4 ✓✓✓× 4. Some common answers (working must be shown) (a) 0015 = 1730 + 6h45m award 3/4 ✓✓×✓ (b) 2255 = 1730 + 6h45m - 80m award 3/4 ✓✓×✓ (c) 0205 = 1730 + 6h75m + 80m award 3/4 ✓×✓✓ (d) (0)6·45(am/pm) award 2/4 ✓✓×× (e) 7·25 = 6·45 + 40 award 2/4 ✓✓×× (f) 6·75 = 351÷52 award 1/4 ✓××× (g) 1850 or 6.50pm = 1730 + 2×40 award 1/4 ×××✓ (h) 1730 + 2×40 = 6·50(am) award 0/4

Question			Expected Answer/s	Max Mark	Additional Guidance
8			**Ans: £4·14** •[1] know to divide 85 by 1·57: 85 ÷ 1·57 (= 54·1401…) •[2] find cost in pounds and pence: 54·14 •[3] find saving in pounds and pence: 54·14 – 50 = 4·14	**3**	1. Correct answer without working award 3/3 2. Alternate strategy •[1] calculate saving in dollars: 85 – 50×1·57 = 6·5(0) •[2] know to divide saving by 1·57: 6·5(0) ÷1·57 •[3] find saving in pounds and pence: 4·14 3. The 2nd mark is only available where the answer to the division has to be rounded or truncated to the nearest penny. (alternate strategy : 3rd mark) 4. Some common answers (working must be shown) (a) 31·85 or 31·84 = 50÷1·57 award 1/3 ×✓× (b) 53·15 or 53·16 = 85 − 50÷1·57 award 2/3 ×✓✓ (c) 33·85 or 33.86 = [85 − (50÷1·57)] ÷1·57 award 2/3 ×✓✓ (d) 18·15 or 18·16 = 50 − 50÷1·57 award 1/3 ×✓× (e) −83·45 = 50 − 85×1·57 award 1/3 ××✓ (f) 133·45 = 85×1·57 award 0/3 (g) 83·45 = 85×1·57 − 50 award 0/3 (h) −48·45 = 85 − 85×1·57 award 0/3

Question			Expected Answer/s	Max Mark	Additional Guidance
9	a		**Ans: 1786** •[1] calculate or measure angle at centre of 'good' sector: 188 •[2] know how to find number of customers who said the service was 'good': $^{188}/_{360} \times 3420$ •[3] find number of customers who said the service was 'good': 1786	3	1. Correct answer without working award 3/3 2. 1634 [$^{172}/_{360} \times 3420$] award 2/3 ×✓✓ (no working necessary) 3. A common answer (working must be shown) 188% of 3420 = 6429·6 award 1/3 ✓×× 4. Do not award third mark where premature rounding results in wrong answer eg $^{188}/_{360} \times 3420 = 0{\cdot}52 \times 3420 = 1778{\cdot}4$ award 2/3 ✓✓×
9	b		**Ans: In 2013 less said good** **more said poor** **more said fair** •[1] make one valid comment: any one of the above comments •[2] make another valid comment: another one of the above comments	2	Answer must imply a comparison of results from both years. 1. Disregard invalid statements. eg less said good now ✓ less said fair now× more said poor now ✓ award 2/2 2. Disregard incorrect numerical references. eg 43º more said fair 15º more said poor award 2/2 3. Some common answers (a) some customers switched from good to poor award 2/2 (b) In 2012 many more customers said good than poor, but in 2013 the numbers were closer to each other. award 1/2 ✓× (c) They haven't been as good as last year. award 1/2 ✓×

Question			Expected Answer/s	Max Mark	Additional Guidance
10			**Ans: 34 cm** •^{1} correct form of Pythagoras' Theorem: $12^2 + 12^2$ •^{2} calculate sum of two squares: 288 •^{3} calculate the square root of a calculated value: 17 •^{4} calculate length: $2\times17 = 34$	**4**	1. Correct answer without working award 4/4 2. Award 4/4 for (a) $33\cdot8 = 16\cdot9 \times 2$ (b) $33\cdot94 = 16\cdot97 \times 2$ 3. Award 3/4 for $16 \times 2 = 32$ 4. Final mark is not available if there is invalid subsequent working. 5. Alternate strategy where candidate calculates total area •^{1} $A = \frac{1}{2} \times 12 \times 12 \times 16$ or equivalent •^{2} $A = 1152$ •^{3} $\ell = \sqrt{1152}$ knows to find $\sqrt{}$ •^{4} $\ell = 33\cdot94$ 6a. Alternate strategy using trig •^{1} $\cos45 = \frac{a}{12}$ (or $\sin45 = \frac{a}{12}$) •^{2} $a = 12 \cos 45$ •^{3} $a = 8\cdot48(5..)$ •^{4} $33\cdot94 = 4\times8\cdot48(5..)$ 6b. Do not penalise inadvertent use of radians or grads $36\cdot5, 36\cdot4(99) = 4\times9\cdot12$ (grads) award 4/4 $25\cdot2, 25\cdot21.. = 4\times6\cdot3$ (radians) award 4/4

Question			Expected Answer/s	Max Mark	Additional Guidance
11			**Ans: £7·35**	**3**	
			$\bullet^1\bullet^2$ know how to calculate interest: $^{1·8}/_{100} \times 980 \times {}^{5}/_{12}$ (award 1 for $^{1·8}/_{100} \times 980$ or $^{5}/_{12} \times {}^{1·8}/_{100}$ or $^{5}/_{12} \times 980$) $\bullet^3$ carry out percentage and fraction calculations correctly: 7·35		1. Correct answer without working award 3/3 2. If answer is 987·35 [980 + 7·35] (no working necessary) (a) award 3/3 if candidate **states** that interest is 7·35 (b) award 2/3 if candidate does **not state** that interest is 7·35 3. Acceptable answers for partial credit (no working necessary) (a) 17·64 [1·8% of 980] award 1/3✓×× (b) 0·75 [$^{5}/_{12} \times 1·8$] award 1/3×✓× (c) 408·33 [$^{5}/_{12} \times 980$] award 1/3×✓× (d) 88·2(0) [17·64 × 5] award 1/3✓×× 4. Premature rounding leading to an incorrect answer eg $^{5}/_{12} = 0·416\ldots = 0·42$ $\rightarrow {}^{1·8}/_{100} \times 980 \times 0·42 = 7·41$ award 2/3 ✓✓× 5. The following common wrong answers illustrate where the 3rd mark is available to candidates. Working must be shown. Answer must be rounded or truncated to nearest penny. (a) $22685·19 = 980 \times {}^{100}/_{1.8} \times {}^{5}/_{12}$ × ✓✓ (b) $226·85 = 980 \div 1.8 \times {}^{5}/_{12}$ ×✓× (c) $42·34 = 980 \times {}^{1.8}/_{100} \times {}^{12}/_{5}$ ✓×✓ (d) $423·36 = 980 \times 0·18 \times {}^{12}/_{5}$ ××✓

Question			Expected Answer/s	Max Mark	Additional Guidance
12			**Ans: 118^o** •[1] use correct sin ratio for angle PSQ: $\sin S = {}^8/_{17}$ •[2] know how to find angle PSQ: $\sin^{-1}({}^8/_{17})$ or $\sin^{-1}(0{\cdot}470\ldots)$ •[3] carry out trig. calculation: $28(\cdot07\ldots.)$ •[4] add 90^o to previously calculated angle: $118(\cdot07\ldots.)$	**4**	1. Correct answer without working award 0/4 2. Do not penalise inadvertent use of radians or grads $90{\cdot}5, 90{\cdot}4(89\ldots)$(radians used) award 4/4 $121(\cdot19\ldots)$ (grads used) award 4/4 3. Where an incorrect trig ratio is used, working should be followed through with the possibility of awarding 3/4. (a) $152, 151{\cdot}9(2\ldots) = 90 + \cos^{-1}({}^8/_{17})$ $= 90 + 61{\cdot}9\ldots$ award 3/4 ×✓✓✓ (b) $115(\cdot2\ldots) = 90 + \tan^{-1}({}^8/_{17})$ $= 90 + 25{\cdot}2\ldots$ award 3/4×✓✓✓ (c) $155, 154(\cdot79\ldots) = 90 + \tan^{-1}({}^{17}/_8)$ $= 90 + 64.8\ldots$ award 3/4×✓✓✓ 4. In awarding the 3rd mark, the trig. ratio should not be rounded to any less than 2 decimal places e.g. (a) $90 + \sin^{-1}(0{\cdot}47) = 118(\cdot03\ldots)$ award 4/4 (b) $90 + \sin^{-1}(0{\cdot}5) = 120$ award 3/4 ✓✓×✓

Question			Expected Answer/s	Max Mark	Additional Guidance
13			**Ans: 8%** •[1] find height increase: 6 •[2] know to express height increase as a fraction of 75: $^{6}/_{75}$ •[3] know to multiply fraction by 100: $^{6}/_{75} \times 100$ •[4] carry out all calculations correctly: 8	**4**	1. Correct answer without working award 4/4 2. 4th mark is only available for calculations of the form $^{a}/_{b} \times c$ where a,b,c = height increase or 75 or 81 or 100. 3. Some common answers (working must be shown) (a) 7(·4…) $[^{6}/_{81} \times 100]$ award 3/4 ✓×✓✓ (b) 108 $[^{81}/_{75} \times 100]$ award 3/4 ×✓✓✓ (c) 92(·5…) $[^{75}/_{81} \times 100]$ award 2/4 ××✓✓ (d) 4·5 [6% of 75] award 2/4 ✓××✓ (e) 4·86 [6% of 81] award 2/4 ✓××✓ (f) 60·75 $[^{75}/_{100} \times 81$ or $^{81}/_{100} \times 75]$ award 1/4 ×××✓ 4. Alternate strategy (using proportion) •[1] Height increase = 6 100% → 75 •[2] 10% → 7·5 1% → 0·75 •[3] 1·5 → 2% •[4] 6 → 8% or equivalent award 4/4

Question	Expected Answer/s	Max Mark	Additional Guidance
14	**Ans: 28 m^2** •^{1} know how to calculate area of semi-circle: ½ πr^2 •^{2} substitute correct radius into formula: ½ × π × 1·5^2 •^{3} know to add area of rectangle to previously calculated value: previously calculated value + 6×4 •^{4} carry out all calculations correctly: 3·53… + 24 = 27·53 (must include a circle calculation **followed by** an addition) •^{5} round to nearest whole number: 28	**5**	1. Correct answer without working award 0/5 2. Where no formula is stated accept (a) ½×π×1·5^2 or 3·5….as evidence of ½πr^2 being used (b) ½×π×3 or 4·7… as evidence of ½πd being used 3. **Some** common answers (working must be shown) (a) 31 [π×1·5^2 + 24] award 4/5 ×✓✓✓✓ (b) 21 [½×π×1·5^2 +4 + 6 + 4 + 3] award 4/5 ✓✓×✓✓ (c) 38 [½×π×3^2 + 24] award 4/5 ✓×✓✓✓ (d) 29 [½×π×3 + 24] award 4/5 ×✓✓✓✓ (e) 26 [½×π×1·5 + 24] award 4/5 ×✓✓✓✓ (f) 4 [½×π×1·5^2] award 3/5 ✓✓××✓ (g) 7 [π×1·5^2] award 2/5 ×✓××✓ (h) 5 [½×π×3] award 2/5 ×✓××✓ (i) 9 [π×3] award 2/5 ×✓××✓ 4. (a) 5th mark is only available where the answer to circle calculation requires rounding. (b) Where premature rounding leads to incorrect answer, a maximum of 4/5 is available.

TOTAL MARKS FOR PAPER 2
50

TOTAL MARKS FOR PAPER 1 & 2
80

[END OF MARKING INSTRUCTIONS]

2014 Mathematics

Intermediate 1 Units 1, 2 & 3
Paper 1 (Non-calculator)

Finalised Marking Instructions

Part One: General Marking Principles for Mathematics Intermediate 1 Units 1, 2 & 3
Paper 1 (Non-calculator)

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1. Marks for each candidate response must always be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question.

2. Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.

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)
- omission or misuse of units (unless marks have been specifically allocated for the purpose in the Marking Instructions)
- 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 Units 1, 2 and 3 Paper 1 (Non-calculator)

Question			Expected Answer/s	Max Mark	Additional Guidance
1	**a**		**Ans: 4·63** •[1] calculate 4·8 – 0·17: 4·63	**1**	
1	**b**		**Ans: 1·204** •[1] calculate 9·632 ÷ 8: 1·204	**1**	
1	**c**		**Ans: 3** •[1] calculate 5% of 60: 3	**1**	Working subsequent to correct answer award 0/1
2			**Ans: £65·94** •[1] correct method: 7 × 9·42 •[2] multiply correctly: 65·94	**2**	Working subsequent to correct answer, a maximum of 1 mark is available
3			**Ans: s = 14** •[1] start to collect like terms: 6s or 84 •[2] collect like terms **and** equate: 6s = 84 •[3] solve equation for s: s = 14	**3**	1. For answers without valid working award 1/3 e.g. (i) s = 14 without working (ii) 8×14 – 3 = 2×14 + 81 → s = 14 2. For the award of the third mark an answer of the form s = is required 3. Answers acceptable for partial credit (valid working must be shown) (i) 6s = 84 → 14 (ii) 6s = 78 → s = 13 } award 2/3✓×✓ (iii) 10s = 84 → s = 8·4 (iv) 10s = 78 → s = 7·8 award 1/3××✓
4	**a**		**Ans: 21** •[1] calculate 8 – (– 13): 21	**1**	
4	**b**		**Ans: 6** •[1] calculate – 54 ÷ (– 9): 6	**1**	

Question			Expected Answer/s	Max Mark	Additional Guidance
5			**Ans:** | **Sandwich** 90p	**Juice** 80p	**Fruit** 50p	**Yoghurt** 45p	**Biscuit** 35p	**Total Cost** £
✓	✓		✓		2·15
✓	✓			✓	2·05
✓		✓	✓		1·85
✓		✓		✓	1·75
	✓	✓	✓		1·75	 •[1] one correct row: •[2] two more correct rows: •[3] final two correct rows:	**3**	1. Where there are missing or incorrect totals a maximum of 2 marks is available (a) 5 rows otherwise "correct" award 2/3×✓✓ (b) 2 rows otherwise "correct" award 1/3×✓×
6	**a**		**Ans:** 	x	– 1	0	3
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y	**–9**	**–5**	**7** | •[1] calculate y when $x = -1$: –9 •[2] calculate y when $x = 0$ **and** 3: –5 **and** 7	**2**	
6	**b**		**Ans: straight line graph of $y = 4x - 5$** •[1] correctly plot all three points from the table •[2] draw straight line through the three points shown in the table	**2**	1. If the line $y = 4x - 5$ is drawn (even if this is not consistent with the points in the table) award 2/2 [minimum acceptable length: line joining (–1,–9) to (2,3)] 2. Where the three points plotted are consistent with the table and are not collinear, the 2nd mark is unavailable **[check gradients]** 3. Where (y,x) is consistently plotted, answer should be followed through with the possibility of awarding the 2nd mark

Question			Expected Answer/s	Max Mark	Additional Guidance
7	a		**Ans: £32** •[1] correct method: 5 + 3×(360÷40) •[2] calculate pay: 32	2	1. Correct answer without working award 2/2 2. Accept 5+3 (=8) ×(360÷40) (=72) as evidence of method for 1st mark 3. £27 (final answer) award 0/2
7	b		**Ans: 600** •[1] correct method: (50−5)÷3×40 •[2] calculate number of leaflets: 600	2	1. Correct answer without working award 2/2 2. Alternative strategy •[1]•[2] e.g. 32 360 35 400 38 440 41 480 44 520 47 560 50 600 [award 1/2 for correct alternate strategy with **one** error.] 3. 15 (final answer) award 0/2

Question			Expected Answer/s	Max Mark	Additional Guidance
8	**a**		**Ans: 198** **<u>236</u>** **<u>720</u>** •[1] complete table: 198 <u>236</u> <u>720</u>	**1**	
8	**b**		**Ans: 2·4** •[1] know to divide Σfx by 300: $720 \div 300$ •[2] correctly divide Σfx by 300: $720 \div 300 = 2{\cdot}4$	**2**	1. Correct answer without working subsequent to part (a) award 2/2 2. 1st mark may only be awarded for **attempting** $\sum fx \div 300$ 3. Award 0/2 for e.g. $144 = 720 \div 5$, $75 = 300 \div 4$ 4. Accept $\Sigma fx \div 100 \times 3$ as evidence of **knowing** to divide Σfx by 300
9			**Ans: 314** •[1] know to multiply $3{\cdot}14 \times 5^2 \times 4$: •[2] find 5^2: 25 •[3] multiply correctly: $3{\cdot}14 \times 25 \times 4 = 314$	**3**	1. Correct answer without working award 3/3 2. $125{\cdot}6 = 3{\cdot}14 \times 5 \times 2 \times 4$ award 2/3 ✓×✓ 4. $62{\cdot}8 = 3{\cdot}14 \times 5 \times 4$ award 1/3 ××✓

Question			Expected Answer/s	Max Mark	Additional Guidance
10			**Ans: $^{4}/_{100}$, $^{3}/_{100}$ so raffle A** •[1] find probability: $^{24}/_{600}$ **or** $^{30}/_{1000}$ •[2] find other probability and attempt to compare it with first probability: $^{24}/_{600}$ and $^{30}/_{1000}$ **and** evidence of attempting to compare probabilities •[3] compare fractions and state conclusion: $^{4}/_{100} > {}^{3}/_{100}$ so raffle A	**3**	1. Accept simplification of **both** fractions (or ratios) as evidence of attempting to compare for 2nd mark 2. Alternate strategy: acceptable evidence for first 2 marks eg (ticket: winners) 600 : 24 **and** 1000 : 30 300 : 12 100 : 3 100 : 4 **or** 600 : 24 **and** 1000 : 30 150 : 6 (750) : 30

TOTAL MARKS FOR PAPER 1

30

[END OF MARKING INSTRUCTIONS]

2014 Mathematics

Intermediate 1 Units 1, 2 & Applications
Paper 1 (Non-Calculator)

Finalised Marking Instructions

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Part Two: Mathematics Intermediate 1 Units 1, 2 and Applications Paper 1 (Non-Calculator)

Question			Expected Answer/s	Max Mark	Additional Guidance
1	**a**		**Ans: 4·63** •[1] calculate 4·8 – 0·17: 4·63	**1**	
1	**b**		**Ans: 1·204** •[1] calculate 9·632 ÷ 8: 1·204	**1**	
1	**c**		**Ans: 3** •[1] calculate 5% of 60: 3	**1**	Working subsequent to correct answer award 0/1
2			**Ans: £65·94** •[1] correct method: 7 × 9·42 •[2] multiply correctly: 65·94	**2**	Working subsequent to correct answer, a maximum of 1 mark is available
3	**a**		**Ans: 30 minutes** •[1] interpret network diagram: 30	**1**	
3	**b**		**Ans: 65 minutes** •[1] interpret network diagram: 65	**1**	
4	**a**		**Ans: 21** •[1] calculate 8 – (– 13)**:** 21	**1**	
4	**b**		**Ans: 6** •[1] calculate – 54 ÷ (– 9): 6	**1**	

<table>
<tr><th colspan="3">Question</th><th>Expected Answer/s</th><th>Max Mark</th><th>Additional Guidance</th></tr>
<tr><td>5</td><td></td><td></td><td>Ans:

<table>
<tr><th>Sandwich
90p</th><th>Juice
80p</th><th>Fruit
50p</th><th>Yoghurt
45p</th><th>Biscuit
35p</th><th>Total Cost
£</th></tr>
<tr><td>✓</td><td>✓</td><td></td><td>✓</td><td></td><td>2·15</td></tr>
<tr><td>✓</td><td>✓</td><td></td><td></td><td>✓</td><td>2·05</td></tr>
<tr><td>✓</td><td></td><td>✓</td><td>✓</td><td></td><td>1·85</td></tr>
<tr><td>✓</td><td></td><td>✓</td><td></td><td>✓</td><td>1·75</td></tr>
<tr><td></td><td>✓</td><td>✓</td><td>✓</td><td></td><td>1·75</td></tr>
</table>

•[1] one correct row:

•[2] two more correct rows:

•[3] final two correct rows:</td><td></td><td>1. Where there are missing or incorrect totals a maximum of 2 marks is available
(a) 5 rows otherwise “correct”
award 2/3×✓✓
(b) 2 rows otherwise “correct”
award 1/3×✓×</td></tr>
<tr><td>6</td><td>a</td><td></td><td>Ans: 1·83

•[1] arrange numbers in order:
1·78 1·81 1·85 1·88 1·89
1·91 1·93 2·01 2·03

•[2] find lower quartile: 1·83</td><td>2</td><td>1. Correct answer without working
award 2/2

2. If ‘correct’ lower quartile is found from ordered list with one missing or one extra number award 1/2 ×✓

3. If numbers not ordered then for lower quartile = 1·88 award 1/2 ×✓

4. Accept ordered list written in part (b)</td></tr>
<tr><td>6</td><td>b</td><td></td><td>Ans: 0·14

•[1] find upper quartile: 1·97

•[2] find interquartile range:
1·97 – 1·83 = 0·14</td><td>2</td><td>1. Correct answer without working
award 2/2

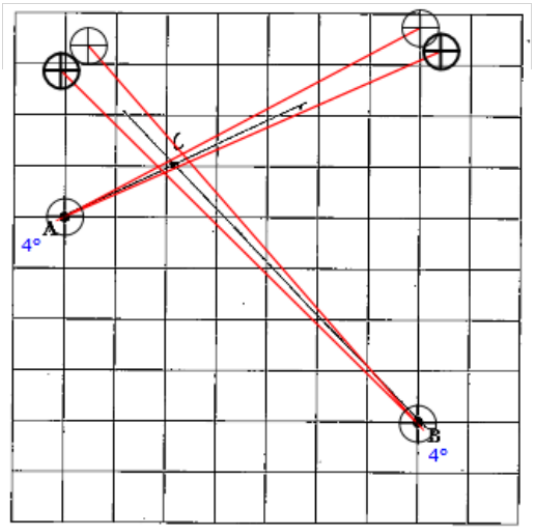
2. If numbers not ordered then award 2/2 for 1·92–1·88 = 0·04

3. Accept upper quartile clearly identified in part (a) for the award of the 2nd mark

4. Range calculated (0·25) award 0/2</td></tr>
</table>

Question			Expected Answer/s	Max Mark	Additional Guidance
7	a		**Ans: £32** •[1] correct method: 5 + 3×(360÷40) •[2] calculate pay: 32	2	1. Correct answer without working award 2/2 2. Accept 5+3 (=8) ×(360÷40) (=72) as evidence of method for 1st mark 3. £27 (final answer) award 0/2
7	b		**Ans: 600** •[1] correct method: (50–5)÷3×40 •[2] calculate number of leaflets: 600	2	1. Correct answer without working award 2/2 2. Alternative strategy •[1]•[2] eg 32 360 35 400 38 440 41 480 44 520 47 560 50 600 [award 1/2 for correct alternate strategy with **one** error.] 3. 15 (final answer) award 0/2

Question			Expected Answer/s	Max Mark	Additional Guidance
8	**a**		**Ans: 198** **<u>236</u>** **<u>720</u>** •[1] complete table: 198 <u>236</u> <u>720</u>	**1**	
8	**b**		**Ans: 2·4** •[1] know to divide Σfx by 300: $720 \div 300$ •[2] correctly divide Σfx by 300: $720 \div 300 = 2{\cdot}4$	**2**	1. Correct answer without working subsequent to part (a) award 2/2 2. 1st mark may only be awarded for **attempting** $\sum fx \div 300$ 3. Award 0/2 for eg $144 = 720 \div 5$, $75 = 300 \div 4$ 4. Accept $\Sigma fx \div 100 \times 3$ as evidence of **knowing** to divide Σfx by 300

Question			Expected Answer/s	Max Mark	Additional Guidance
9	a		**Ans: 400m** •[1] find distance: 8·1 × 50 = 405	1	Acceptable values 395, 400, 405, 410 (7·9cm ≤ length ≤ 8·2cm)
9	b		**Ans: see diagram** •[1] interpret/communicate: one bearing shown correctly (±2°) •[2] interpret/communicate: second bearing shown correctly ((±2°) •[3] strategy/process: find point of intersection of two bearings	3	1. Diagram below shows the acceptable limits for the position of C 2. If the bearings are not drawn on the diagram: (i) C in correct position award 3/3 (ii) C on correct bearing from either A or B award 1/3 3. Where two incorrect lines are drawn the 3rd mark is only available if one line originates at A and the other originates at B 

Question			Expected Answer/s	Max Mark	Additional Guidance
10			**Ans: $^{4}/_{100}$, $^{3}/_{100}$ so raffle A** •[1] find probability: $^{24}/_{600}$ **or** $^{30}/_{1000}$ •[2] find other probability and attempt to compare it with first probability: $^{24}/_{600}$ and $^{30}/_{1000}$ **and** evidence of attempting to compare probabilities •[3] compare fractions and state conclusion: $^{4}/_{100} > {}^{3}/_{100}$ so raffle A	**3**	1. Accept simplification of **both** fractions (or ratios) as evidence of attempting to compare for 2nd mark 2. Alternate strategy: acceptable evidence for first 2 marks eg (ticket: winners) 600 : 24 **and** 1000 : 30 300 : 12 100 : 3 100 : 4 **or** 600 : 24 **and** 1000 : 30 150 : 6 (750) : 30

TOTAL MARKS FOR PAPER 1

30

[END OF MARKING INSTRUCTIONS]

2014 Mathematics

Intermediate 1 Units 1, 2 & Applications Paper 2

Finalised Marking Instructions

Part One: General Marking Principles for Mathematics Intermediate 1 Units 1, 2 & Applications Paper 2

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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: 875 ml** •[1] find number of ml per orange: $500 \div 8 = 62{\cdot}5$ •[2] find amount of juice: $62{\cdot}5 \times 14 = 875$	**2**	1. Correct answer without working award 2/2 2. Alternate strategies (a) •[1] $14 \div 8 = 1{\cdot}75$ •[2] $1{\cdot}75 \times 500 = 875$ (b) •[1] $14 \div (8 \div 500)$ •[2] $14 \div 0.016 = 875$ [$8 \div 500$ is not enough for the 1st mark]
2	a		**Ans: £248·95** •[1] find monthly payment: 248·95	**1**	
2	b		**Ans: £29 874** •[1] start to find total payment: $248{\cdot}95 \times 10 \times 12$ **or** $2489{\cdot}5(0)$ [$248{\cdot}95 \times 10$] **or** $2987{\cdot}4(0)$ [$248{\cdot}95 \times 12$] •[2] find total payment: 29 874	**2**	1. Correct answer without working award 2/2 2. If part (a) is incorrect allow follow through in part (b)
3			**Ans: 167·8 cm^2** •[1] know how to find area of a triangular face: $^1/_2 \times 11{\cdot}6 \times 3$ (= 17·4) •[2] know how to find total area of rectangular faces: $11{\cdot}6 \times 5 + 3 \times 5 + 12 \times 5$ (= 133) •[3] calculate total surface area: 167·8	**3**	1. Correct answer without working award 3/3 2. The final mark can only be awarded for the addition of 5 correct calculations, but see 3(a) below. 3. (a) Where there is **clear** evidence that triangles are combined to form a rectangle, then award 3/3 for $(11{\cdot}6 \times 3) + (11{\cdot}6 \times 5 + 3 \times 5 + 12 \times 5) = 167{\cdot}8$ (b) for $11{\cdot}6 \times 3 = 34{\cdot}8$ alone award 0/3 4. For calculation of volume (87) award 0/3

Question			Expected Answer/s	Max Mark	Additional Guidance
4	**a**		**Ans:** **2 | 789** **3 | 012346689** **4 | 12456** **5 | 034** **6 | 2** •[1] stem correct: •[2] all leaves on correct level: •[3] leaves ordered correctly	**3**	1. Accept (a) use of commas as bad form (b) stem in descending order (c) no line drawn between stem and leaves (d) extra numbers in the stem 2. Final mark is not available where there are more than two errors in the unordered diagram
4	**b**		**Ans: 38 mpg** •[1] find median: 38	**1**	Ensure 4b is consistent with 4a
4	**c**		**Ans: 35 mpg** •[1] find range: 35	**1**	Range may be calculated from original data **or** using candidate's answer in 4a

Question			Expected Answer/s	Max Mark	Additional Guidance
5	**a**		**Ans: 674** •[1] evaluate formula: 674	**1**	
5	**b**		**Ans: =AVERAGE(E3..E6)** •[1] state formula: AVERAGE(E3..E6) or equivalent	**1**	1. Accept any punctuation mark or space between E3 and E6 2. Accept abbreviations for AVERAGE eg AV(E3..E6) 3. Accept (E3 +E4+E5+E6)/4 or SUM(E3..E6)/4 [must be / **not** ÷] 4. Common answer average:(E3..E6) award 0/1
6			**Ans: 297** •[1] know to multiply l×b×h: evidence of l×b×h involving 60, 45 and 1·1 •[2] find volume in cm^3: 60×45×110 = 297 000 •[3] find volume in litres: 297 000 ÷ 1000 = 297	**3**	1. Correct answer without working award 3/3 2. Some common answers answers [working must be shown] (a) 2·97 [(60×45×1·1)÷1000] award 2/3 ✓×✓ (b) 29·7 [(60×45×11)÷1000] award 2/3 ✓×✓ (c) 2970 [(60×45×1100)÷1000] award 2/3 ✓×✓ (d) 2970 [(60×45×1.1)] award 1/3 ✓×× (e) 2 litres 970ml award 1/3 ✓×× 3. **Special cases**: V = l + b + h [working must be shown] (a) 0·215 [(60+45+110)÷1000] award 2/3 ×✓✓ (b) 0·1061 [(60+45+1·1)÷1000] award 1/3 ××✓

Question			Expected Answer/s	Max Mark	Additional Guidance
7			**Ans: 0135 or 1.35am** •[1] know how to find driving time: 351 ÷ 52 •[2] find driving time: 6h45m •[3] find journey time: 6h45m + 2×40 = 8h5m •[4] find arrival time: 1730 + 8h5m = 0135	**4**	1. Correct answer without working award 4/4. 2. Minimum requirement for 4th mark: correctly add a time involving hours and minutes to 1730 3. Some common answers (no working necessary) 2535, 1335 or 1.35pm award 3/4 ✓✓✓× 4. Some common answers (working must be shown) (a) 0015 = 1730 + 6h45m award 3/4 ✓✓×✓ (b) 2255 = 1730 + 6h45m - 80m award 3/4 ✓✓×✓ (c) 0205=1730+6h75m + 80m award 3/4 ✓×✓✓ (d) (0)6·45(am/pm) award 2/4 ✓✓×× (e) 6·45 + 40 = 7·25 award 2/4 ✓✓×× (f) 351÷52 = 6·75 award 1/4 ✓××× (g) 1730 + 2×40 = 1850 or 6.50pm award 1/4 ×××✓ (h) 1730 + 2×40 = 6.50(am) award 0/4

Question	Expected Answer/s	Max Mark	Additional Guidance
8	**Ans: £4·14** •[1] know to divide 85 by 1·57: 85 ÷ 1·57 (= 54·1401…) •[2] find cost in pounds and pence: 54·14 •[3] find saving in pounds and pence: 54·14 – 50 = 4·14	**3**	1. Correct answer without working award 3/3 2. Alternate strategy •[1] calculate saving in dollars: 85 – 50×1·57 = 6·5(0) •[2] know to divide saving by 1·57: 6·5(0) ÷1·57 •[3] find saving in pounds and pence: 4·14 3. The 2nd mark is only available where the answer to the division has to be rounded or truncated to the nearest penny. (alternate strategy : 3rd mark) 4. Some common answers (working must be shown) (a) 31·85 or 31·84 = 50÷1·57 award 1/3 ×✓× (b) 53·15 or 53·16 = 85 − 50÷1·57 award 2/3 ×✓✓ (c) 33·85 or 33.86 = [85 − (50÷1·57)] ÷1·57 award 2/3 ×✓✓ (d) 18·15 or 18·16 = 50 − 50÷1·57 award 1/3 ×✓× (e) −83·45 = 50 − 85×1·57 award 1/3 ××✓ (f) 133·45 = 85×1·57 award 0/3 (g) 83·45 = 85×1·57 − 50 award 0/3 (h) −48·45 = 85 − 85×1·57 award 0/3

Question			Expected Answer/s	Max Mark	Additional Guidance
9	a		**Ans: 1786** •[1] calculate or measure angle at centre of 'good' sector: 188 •[2] know how to find number of customers who said the service was 'good': $^{188}/_{360} \times 3420$ •[3] find number of customers who said the service was 'good': 1786	**3**	1. Correct answer without working award 3/3 2. 1634 [$_{172}/_{360} \times 3420$] award 2/3 ×✓✓ (no working necessary) 3. A common answer (working must be shown) 188% of 3420 = 6429·6 award 1/3 ✓×× 4. Do not award third mark where premature rounding results in wrong answer eg $^{188}/_{360} \times 3420 = 0{\cdot}52 \times 3420 = 1778{\cdot}4$ award 2/3 ✓✓×
9	b		**Ans: In 2013 less said good** **more said poor** **more said fair** •[1] make one valid comment: any one of the above comments •[2] make another valid comment: another one of the above comments	**2**	Answer must imply a comparison of results from both years. 1. Disregard invalid statements. eg less said good now ✓ less said fair now× more said poor now ✓ award 2/2 2. Disregard incorrect numerical references. eg 43º more said fair 15º more said poor award 2/2 3. Some common answers (a) some customers switched from good to poor award 2/2 (b) In 2012 many more customers said good than poor, but in 2013 the numbers were closer to each other. award 1/2 ✓× (c) They haven't been as good as last year. award 1/2 ✓×

Question			Expected Answer/s	Max Mark	Additional Guidance
10			**Ans: 34 cm** •[1] correct form of Pythagoras' Theorem: $12^2 + 12^2$ •[2] calculate sum of two squares: 288 •[3] calculate the square root of a calculated value: 17 •[4] calculate length: $2\times17 = 34$	**4**	1. Correct answer without working award 4/4 2. Award 4/4 for (a) $33\cdot8 = 16\cdot9 \times 2$ (b) $33\cdot94 = 16\cdot97 \times 2$ 3. Award 3/4 for $16 \times 2 = 32$ 4. Final mark is not available if there is invalid subsequent working. 5. Alternate strategy where candidate calculates total area •[1] $A = ½ \times 12 \times 12 \times 16$ or equivalent •[2] $A = 1152$ •[3] $\ell = \sqrt{1152}$ knows to find $\sqrt{\ }$ •[4] $\ell = 33\cdot94$ 6a. Alternate strategy using trig •[1] $\cos45 = \frac{9}{12}$ (or $\sin45 = \frac{9}{12}$) •[2] $a = 12 \cos 45$ •[3] $a = 8\cdot48(5..)$ •[4] $33\cdot94 = 4\times8\cdot48(5..)$ 6b. Do not penalise inadvertent use of radians or grads $36\cdot5, 36\cdot4(99) = 4\times9\cdot12$ (grads) award 4/4 $25\cdot2, 25\cdot21.. = 4\times6\cdot3$ (radians) award 4/4

Question			Expected Answer/s	Max Mark	Additional Guidance
11			**Ans: £7·35** $\bullet^1\bullet^2$ know how to calculate interest: $^{1·8}/_{100} \times 980 \times {}^{5}/_{12}$ (award 1 for $^{1·8}/_{100} \times 980$ or $^{5}/_{12} \times {}^{1·8}/_{100}$ or $^{5}/_{12} \times 980$) $\bullet^3$ carry out percentage and fraction calculations correctly: 7·35	**3**	1. Correct answer without working award 3/3 2. If answer is 987·35 [980 + 7·35] (no working necessary) (a) award 3/3 if candidate **states** that interest is 7·35 (b) award 2/3 if candidate does **not state** that interest is 7·35 3. Acceptable answers for partial credit (no working necessary) (a) 17·64 [1·8% of 980] award 1/3✓×× (b) 0·75 [$^{5}/_{12} \times 1·8$] award 1/3×✓× (c) 408·33 [$^{5}/_{12} \times 980$] award 1/3×✓× (d) 88·2(0) [17·64 × 5] award 1/3✓×× 4. Premature rounding leading to an incorrect answer eg $^{5}/_{12} = 0·416\ldots = 0·42$ $\rightarrow {}^{1·8}/_{100} \times 980 \times 0·42 = 7·41$ award 2/3 ✓✓× 5. The following common wrong answers illustrate where the 3rd mark is available to candidates. Working must be shown. Answer must be rounded or truncated to nearest penny. (a) $22685·19 = 980 \times {}^{100}/_{1·8} \times {}^{5}/_{12}$ ×✓✓ (b) $226·85 = 980 \div 1·8 \times {}^{5}/_{12}$ ×✓× (c) $42·34 = 980 \times {}^{1·8}/_{100} \times {}^{12}/_{5}$ ✓×✓ (d) $423·36 = 980 \times 0·18 \times {}^{12}/_{5}$ ××✓

Question			Expected Answer/s	Max Mark	Additional Guidance
12			**Ans: 7 hours** •[1] know how to find basic wage: $24 \times 7{\cdot}50$ (= 180) •[2] know how to find overtime pay: 285 – basic wage (= 105) •[3] know how to find number of overtime hours: overtime pay ÷ ($7{\cdot}50 \times 2$) •[4] all calculations correct: 7	**4**	1. Correct answer without working award 4/4 2. Alternate strategy •[1] strategy: $285 \div 7{\cdot}50$ (= 38) •[2] strategy: above answer – 24 (= 14) •[3] strategy: above answer ÷ 2 •[4] all calculations correct: 7 3. For 4th mark calculations must include a subtraction **and** division / multiplication. These may be implied. 4. Common answers $(285 \div 2) \div 7{\cdot}5 = 19$ award 1/4 14 with no working award 2/4

Question	Expected Answer/s	Max Mark	Additional Guidance
13	**Ans: 8%** •[1] find height increase: 6 •[2] know to express height increase as a fraction of 75: $^{6}/_{75}$ •[3] know to multiply fraction by 100: $^{6}/_{75} \times 100$ •[4] carry out all calculations correctly: 8	**4**	1. Correct answer without working award 4/4 2. 4th mark is only available for calculations of the form $^{a}/_{b} \times c$ where a,b,c = height increase or 75 or 81 or 100. 3. Some common answers (working must be shown) (a) 7(·4…) $[^{6}/_{81} \times 100]$ award 3/4 ✓×✓✓ (b) 108 $[^{81}/_{75} \times 100]$ award 3/4 ×✓✓✓ (c) 92(·5…) $[^{75}/_{81} \times 100]$ award 2/4 ××✓✓ (d) 4·5 [6% of 75] award 2/4 ✓××✓ (e) 4·86 [6% of 81] award 2/4 ✓××✓ (f) 60·75 $[^{75}/_{100} \times 81$ or $^{81}/_{100} \times 75]$ award 1/4 ×××✓ 4. Alternate strategy (using proportion) •[1] Height increase = 6 100% → 75 •[2] 10% → 7·5 1% → 0·75 •[3] 1·5 → 2% •[4] 6 → 8% or equivalent award 4/4

Question	Expected Answer/s	Max Mark	Additional Guidance
14	**Ans: 28 m^2** •[1] know how to calculate area of semi-circle: $\frac{1}{2}\pi r^2$ •[2] substitute correct radius into formula: $\frac{1}{2} \times \pi \times 1{\cdot}5^2$ •[3] know to add area of rectangle to previously calculated value: previously calculated value + 6×4 •[4] carry out all calculations correctly: $3{\cdot}53\ldots + 24 = 27{\cdot}53\ldots$. (must include a circle calculation **followed by** an addition) •[5] round to nearest whole number: 28	**5**	1. Correct answer without working award 0/5 2. Where no formula is stated accept (a) $\frac{1}{2}\times\pi\times1{\cdot}5^2$ or $3{\cdot}5\ldots$.as evidence of $\frac{1}{2}\pi r^2$ being used (b) $\frac{1}{2}\times\pi\times3$ or $4{\cdot}7\ldots$ as evidence of $\frac{1}{2}\pi d$ being used 3. **Some** common answers (working must be shown) (a) 31 $[\pi\times1{\cdot}5^2 + 24]$ award 4/5 ×✓✓✓✓ (b) 21 $[\frac{1}{2}\times\pi\times1{\cdot}5^2 +4 + 6 + 4 + 3]$ award 4/5 ✓✓×✓✓ (c) 38 $[\frac{1}{2}\times\pi\times3^2 + 24]$ award 4/5 ✓×✓✓✓ (d) 29 $[\frac{1}{2}\times\pi\times3 + 24]$ award 4/5 ×✓✓✓✓ (e) 26 $[\frac{1}{2}\times\pi\times1{\cdot}5 + 24]$ award 4/5 ×✓✓✓✓ (f) 4 $[\frac{1}{2}\times\pi\times1{\cdot}5^2]$ award 3/5 ✓✓××✓ (g) 7 $[\pi\times1{\cdot}5^2]$ award 2/5 ×✓××✓ (h) 5 $[\frac{1}{2}\times\pi\times3]$ award 2/5 ×✓××✓ (i) 9 $[\pi\times3]$ award 2/5 ×✓××✓ 4. (a) 5^{th} mark is only available where the answer to circle calculation requires rounding. (b) Where premature rounding leads to incorrect answer, a maximum of 4/5 is available.

TOTAL MARKS FOR PAPER 2
50

TOTAL MARKS FOR PAPER 1 & 2
80

[END OF MARKING INSTRUCTIONS]