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Mark Scheme (Results)

January 2015

Pearson Edexcel International GCSE
Mathematics A (4MA0)
Paper 1F

Pearson Edexcel Level 1/Level 2 Certificate
Mathematics A (KMA0)
Paper 1F

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme.
  Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

- **Types of mark**
  - M marks: method marks
  - A marks: accuracy marks
  - B marks: unconditional accuracy marks (independent of M marks)

- **Abbreviations**
  - cao – correct answer only
  - ft – follow through
  - isw – ignore subsequent working
  - SC - special case
  - oe – or equivalent (and appropriate)
  - dep – dependent
  - indep – independent
  - eeoo – each error or omission

- **No working**

  If no working is shown then correct answers normally score full marks

  If no working is shown then incorrect (even though nearly correct) answers score no marks.

- **With working**

  If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
  If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks.
  Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks.
  If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
  If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.
  If there is no answer on the answer line then check the working for an obvious answer.

- **Ignoring subsequent work**

  It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. Incorrect cancelling of a fraction that would otherwise be correct.
  It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect eg algebra.
  Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

- **Parts of questions**

  Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

Apart from Question 15b, where the mark scheme states otherwise, the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method.

Question	Working	Answer	Mark	Notes
1. (a)		cm	1	B1 or centimetre(s)
(b)		g	1	B1 or gram(me)(s)
(c)		ml	1	B1 or millilitre(s) or cm^3 or cubic centimetres Do not accept cc
				Total 3 Marks

Question	Working	Answer	Mark	Notes
2.	8 x 0.6(0) or 4.8(0) or 8 × 60 or 480		3	M1
	10 – "4.80" or 1000 – 480 or 520			M1 dep on first M1
		5.20		A1 allow 5.2
				Total 3 Marks

Question	Working	Answer	Mark	Notes
3. (a)		4	1	B1
(b)		22	1	B1 **ft** from their (a) 5.5 x "4"
(c)	4 complete ⊠ and a quarter ⊠		1	B1
(d)		50	1	B1
				Total 4 Marks

Question	Working	Answer	Mark	Notes
4. (a)		36.8	1	B1 Ignore units
(b)	Arrow marked between 98.2 and 98.4 (exclusive)		1	B1
				Total 2 Marks

Question	Working	Answer	Mark	Notes
5. (a)		48		B1 shown as sixth term
		55	2	B1 shown as seventh term ft from their (a) "48" + 7
(b)		Added 7	1	B1 accept +7, 7 more, jumped forward by 7, difference = 7 oe or 7n + 6
(c)	13 + 19 × 7 or 20 × 7 + 6 or 7n + 6 Or 13, 20, 27, …., 139, 146 (list of 20 terms)			M1 allow 13 + 20 x 7 or 139 or 153 List should show a clear intention of adding 7 with at least 5 terms (including 55). Condone 1 arithmetic error. Eg 55, 62, 69, 76, 82 Eg 48, 55, 62, 69, 76, 82
		146	2	A1 May be seen as the last term in a list
				Total 5 marks

Question	Working	Answer	Mark	Notes
6. (a)		143 000	1	B1
(b)		11.9	1	B1
(c)		778	1	B1 cao
				Total 3 Marks

Question		Working	Answer	Mark	Notes
7.	(a)	$100 - 20 - 24$		2	M1
			56		A1
	(b)	$\frac{24}{100}$ oe		2	M1
			$\frac{6}{25}$		A1
	(c)	$\frac{20}{100} \times 75$ or $\frac{75}{5}$ oe		2	M1
			15		A1 SC: Award B1 for final answer of 60
					Total 6 Marks

Question		Working	Answer	Mark	Notes
8.	(a)		3572 or 3752 or 5372 or 5732 or 7352 or 7532	1	B1
	(b)		2357	1	B1
	(c)		25	1	B1
	(d)		27	1	B1
	(e)		23 or 37 or 53 or 73	1	B1
					Total 5 Marks

Question		Working	Answer	Mark	Notes
9.	(a)		9.6	1	B1 Allow 9.5 to 9.7 (inclusive)
	(b)		2	1	B1
	(c)		20	1	B1
	(d)		16	1	B1
	(e)	Any 4 lines reflected correctly or a correct reflection in a line parallel to AB		2	M1
			Correct reflection		A1
					Total 6 Marks

Question		Working	Answer	Mark	Notes
10.	(a)		1 000	1	B1
	(b)	$\frac{875}{2.5}$		2	M1
			350		A1
	(c)		$V = 2.5n$	2	B2 Accept $V = 2.5 \times n$ oe Award B1 for $2.5n$ oe or $n = V/2.5$
					Total 5 Marks

Question	Working	Answer	Mark	Notes
11. (a)	67 – 4		2	M1 Allow 4 – 67 or "4 to 67" or – 63
		63		A1
(b)	$\frac{12+35+4+67+32+54}{6}$ or $\frac{204}{6}$ (12 + 35 + 4 + 67 +32 + 54) ÷ 6		2	M1 Condone missing brackets
		34		A1
(c)			2	M1 Accept $\frac{2}{a}$ with $a > 2$ or $\frac{b}{6}$ with $0 < b < 6$ (a and b should be integers)
		$\frac{2}{6}$		A1 oe eg $\frac{1}{3}$ Allow 0.33(3…) correct to at least 2dp M1A0 for 1 : 3 or 2 : 6 oe
				Total 6 Marks

Question	Working	Answer	Mark	Notes
12. (a)(i)		125	2	B1
(a)(ii)	Angles on a straight line add up to 180 degrees			B1 for "straight line" AND "180" Ignore extra information unless there is a contradiction
(b)		55	1	B1
(c)	180 – 2 x 55		2	M1
		70		A1
				Total 5 marks

Question	Working	Answer	Mark	Notes
13. (a)	250 × 120			M1
		30 000	2	A1
(b)	9000 ÷ 120			M1
		75	2	A1
(c)	50 × 1.2 × 120 or 50 × 1.2 or 60 or 1.2 × 120 or 144			M1 Allow $\frac{50\times120}{120}$
		7200	2	A1 SCB1 for 5000 or $\frac{50\times120}{1.2}$ oe or 41.6(66666) × 120 oe with 41.6(66666) rounded or truncated to at least 3SF
				Total 6 Marks

Question	Working	Answer	Mark	Notes
14. (a)		15.625	1	B1 Allow 15.6 or 15.63
(b)	$\frac{451.4}{24.4}$			M1 for 24.4
		18.5	2	A1 Accept $18\frac{1}{2}$ or 37/2 but not unsimplified fractions Accept equivalent decimal (eg 18.50)
(c)	$\sqrt{60.84-51.84}=\sqrt{9}$ or $\sqrt{\frac{1521}{25}-\frac{1296}{25}}$			M1 for 60.84 – 51.84 or $\frac{1521}{25}-\frac{1296}{25}$ or 9
		3	2	A1 Accept -3 or ± 3
				Total 5 marks

Question	Working	Answer	Mark	Notes
15. (a)	Eg $3x = 21$ or $3x = 26 – 5$ or $– 3x = – 21$ or $3x – 21 = 0$ or $21 – 3x = 0$ or $(26 – 5) \div 3$			M1
		7	2	A1
(b)	$20y-4=18y+21$			M1 for $20y – 4$ **or** $18y + 21$
	Eg $20y – 18y = 21 + 4$ or $2y = 25$			M1 For a correct equation with the y terms collected on one side of the equation and the non y terms on the other side.
		$12\frac{1}{2}$	3	A1 oe dep on at least M1
				Total 5 marks

Question	Working	Answer	Mark	Notes
16.	eg $15\times12+\frac{1}{2}\times12\times10-\frac{1}{2}\times12\times4$ or 180 + 60 – 24 or (10 + 15) × 12 – ($\frac{1}{2}$ × 12 × 4 + $\frac{1}{2}$ × 10 × 6 + $\frac{1}{2}$ × 10 × 6) or 300 – (24 + 30 + 30) or 2 × $\frac{1}{2}(15+21)\times6$ or 2 × 108			M3 For a complete method.
	eg $\frac{1}{2}$ × 4 × 12 and $\frac{1}{2}$ × 10 × 6 (24 and 30) or $\frac{1}{2}$ × 4 × 12 and $\frac{1}{2}$ × 10 × 12 (24 and 60) or $\frac{1}{2}$ × 4 × 6 and $\frac{1}{2}$ × 10 × 6 (12 and 30) or $\frac{1}{2}$ × 4 × 6 and $\frac{1}{2}$ × 10 × 12 (12 and 60) or $\frac{1}{2}(15+21)\times6$ or 108 or $\frac{1}{2}$(15 + 11) × 6 or 78			If not M3 then M2 for 2 different but non overlapping triangles or 1 trapezium
	eg $\frac{1}{2}$ × 4 × 6 or 12 or $\frac{1}{2}$ × 4 × 12 or 24 or $\frac{1}{2}$ × 10 × 6 or 30 or $\frac{1}{2}$ × 10 × 12 or 60 or $\frac{1}{2}$ × 11 × 6 or 33 or $\frac{1}{2}$ × 11 × 12 or 66 or $\frac{1}{2}$ × 15 × 6 or 45 or 15 × 6 or 90 or 15×12 or 180 or 25 × 6 or 150 or 25 × 12 or 300 or 10 × 6 or 60 or 10 × 12 or 120 or 11 × 6 or 66 or 11 × 12 or 132 or 4 × 12 or 48 or 4 × 6 or 24			If not M2 then M1 for a correct area of a triangle or rectangle. NB : The lists of examples are not exhaustive.
		216	4	A1
				Total 4 marks

Question	Working	Answer	Mark	Notes
17.	$(2 \times 7 - 4) \times 90$ or $(7 - 2) \times 180$ or $7\left(180 - \frac{360}{7}\right)$ or 720 + 180			M1 For the sum of the interior angles or an interior angle Eg Allow M1 for $\frac{(7-2)\times 180}{7}$ oe or 128.(571428.....) correctly rounded or truncated to at least 3SF.
		900	2	A1 Mark the final answer
				Total 2 marks

Question	Working	Answer	Mark	Notes
18. (a)(i)		$\frac{24}{72}$	1	B1 oe eg $\frac{1}{3}$ or Accept 0.33(3333…) correct to at least 2dp
(a)(ii)	28 + 20 or 72 – 24 or 48 or 1 – "$\frac{24}{72}$"			M1ft ft from their (a)(i) if 0 < (a)(i) < 1
		$\frac{48}{72}$	2	A1ft oe eg $\frac{2}{3}$ or Accept 0.66(66…..) rounded or truncated to at least 2 dp ft from their (a)(i)) if 0 < (a)(i) < 1 M1A0 for 48:72 oe
(b)	$1-0.08-0.1$		2	M1
		0.82		A1 oe eg accept 82/100
(c)	$\frac{20}{100} \times 60$ oe		2	M1
		12		A1 Accept 12 out of 60 M1A0 for 12/60
				Total 7 marks

Question	Working	Answer	Mark	Notes
19. (a)	153 – 125 or 28 "28" ÷ 125 (= 0.224)			M1 153 ÷ 125 (= 1.224) 153 ÷ 125 (= 1.224) M1dep "1.224" – 1 (= 0.224) "1.224" × 100 (= 122.4)
		22.4	3	A1 cao
(b)	$\frac{153}{85} \times 100$ or $\frac{153}{0.85}$ oe			M2 M1 for $\frac{153}{85}$ or 1.8 or 85% = 153 or 0.85x = 153 oe
		180	3	A1
				Total 6 marks

Question	Working	Answer	Mark	Notes
20. (a)	$6c-15-2c+8$		2	M1 Any three terms correct
		$4c-7$		A1
(b)		$16e^6$	2	B2 B1 for 16 or e^6 as part of a product or B1 for $4^2 \times e^{2\times3}$
(c)	$a^2+5a-a-5$		2	M1 any three terms correct or $a^2+4a+...$ or $\ldots+4a-5$
		a^2+4a-5		A1
				Total 6 marks

Question	Working	Answer	Mark	Notes	
21. (a)	$15^2 - 10^2$ or 225 – 100 or 125			M1	M2 for any complete and correct method
	$\sqrt{"125"}$ or $5\sqrt{5}$			M1 dep on M1	
		11.2	3	A1 awrt 11.2	
(b)	$\tan C = \frac{10}{12.5}$ or $\tan C = 0.8$			M1	M2 for any complete and correct method
	$\tan^{-1}\left(\frac{10}{12.5}\right)$ oe			M1	
		38.7	3	A1 Accept 38.6(5980825.....) rounded or truncated to at least 3 SF.	
					Total 6 marks

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