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Mark Scheme (Results)

January 2014

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

Pearson Edexcel L1/L2 Certificate Mathematics A (KMA0/1F) 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**
  - Awrt – answers which round to….
  - 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 answers (even if nearly correct) 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: eg. 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.

In all questions, 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)		four thousand and eighteen	1	B1 Accept 4 for 'four'. Condone omission of 'and'.
	(b)		hundreds	1	B1 Also accept hundred, 100, 700
	(c)		1600	1	B1 cao
	(d)		2429	1	B1 cao
	(e)		16 35	1	B1 Also accept 16 35 pm
					Total 5 marks

Question		Working	Answer	Mark	Notes
2	(a)		130	1	B1 cao
	(b)		Singapore	1	B1
	(c)		bar at 120	1	B1 Allow $\pm$ 2mm Also accept line instead of bar
	(d)	140 − 80		2	M1 80 – 140, 80 to 140 etc
			60		A1 cao
					Total 5 marks

Question	Working	Answer	Mark	Notes
3 (a)		eg $\frac{6}{10}$ oe	1	B1
(b)		0.6	1	B1 Accept trailing zeros eg 0.60
(c)		60	1	B1 cao
(d)(i)	$\frac{3}{5}\times 875$ or $\frac{875}{5}$ or 175 or 3×875 or 2625		2	M1
		525		A1 cao
(ii)		$\frac{2}{5}$	1	B1 or any equivalent fraction eg. $\frac{350}{875}$
(iii)	$\frac{8}{100}\times 875$ oe		2	M1
		70		A1 cao
				Total 8 marks

Question	Working	Answer	Mark	Notes
4 (a)(i)		rectangle	1	B1
(ii)		12	1	B1 cao
(b)(i)		trapezium	1	B1
(ii)		parallel lines marked	1	B1
(iii)		6	2	B2 B1 for $5 \leq$ ans ≤ 7 (excluding 6)
(c)		complete rhombus	2	B2 B1 for at least one correct side added in a correct position (ignore shading)
(d)		complete square	2	B2 B1 for at least one correct side added in a correct position
				Total 10 marks

Question	Working	Answer	Mark	Notes
5 (a)		Correct pattern	1	B1
(b)		8 10 9 11	2	B2 B1 for 8 10 B1 for 9 11
(c)		38	1	B1 cao
(d)(i)		55	1	B1 cao
(ii)	eg 'doubled 27 then added 1', 'kept adding 2'		1	B1 eg. $2n + 1$; pattern number add next pattern number
(e)	$65 - 1$ or $2x + 1 = 65$		2	M1
		32		A1 cao
(f)		$W = 2n$	2	B2 Also accept $W = n2$, $W = 2 \times n$, $W = n \times 2$, $W = n + n$ B1 for $2n$ oe or for $W =$ (expression in n) or for $n = W \div 2$ (correct formula with n the subject)
				Total 10 marks

Question	Working	Answer	Mark	Notes
6 (a)		2.9	1	B1 cao
(b)		54.76	1	B1 cao
(c)(i)		19.683	1	B1 cao
(ii)		19.7	1	B1 ft from (i) provided that an answer to at least 4 sf seen in (i)
(d)		2000	1	B1 cao
				Total 5 marks

Question	Working	Answer	Mark	Notes
7 (a)		$3c - 2d$	2	B2 B1 for $3c$ or $-2d$
(b)	$4x = 17 - 5$ or $4x = 12$		2	M1
		3 oe		A1
				Total 4 marks

Question	Working	Answer	Mark	Notes
8 (a)		30	1	B1 cao
(b)(i)		1	1	B1 Also accept $\frac{20}{20}$ or $\frac{1}{1}$ oe 100%
(ii)			2	M1 for $\frac{4}{a}$ with $a > 4$ **or** $\frac{b}{20}$ with b < 20 **or** 4 and 20 used with incorrect notation (eg. 4 : 20; 1 : 5)
		$\frac{4}{20}$ oe		A1 accept answer written as an equivalent fraction or 0.2 or 20%
(iii)	5 + 2 or 7 or $\frac{5}{20} + \frac{2}{20}$		2	M1
		$\frac{7}{20}$ oe		A1 accept answer written as an equivalent fraction or 0.35 or 35%
(iv)			2	M1 for $\frac{9}{a}$ with $a > 9$ **or** $\frac{b}{20}$ with b < 20 **or** 9 and 20 used with incorrect notation (eg. 9 : 20)
		$\frac{9}{20}$ oe		A1 accept answer written as an equivalent fraction or 0.45 or 45%
				Total 8 marks

Question		Working	Answer	Mark	Notes
9	(a)	180 − (90 + 38) or 180 − 128 or 90 − 38		2	M1
			52		A1 cao
	(b)	360 − (79 + 107 + 58) or 360 − 244		2	M1
			116		A1 cao
					Total 4 marks

Question	Working	Answer	Mark	Notes
10	5772 – 4200 or 1572		3	M1
	"1572" ÷ 0.16			M1 dep
		9825		A1 cao SC if no other marks gained, award B1 for 98.25
				Total 3 marks

Question		Working	Answer	Mark	Notes
11	(a)		$20c^2$	1	B1 Also accept $c^2 20$
	(b)		$x(x + 4)$ or $x(4 + x)$	2	B2 Award B2 also for $(x \pm 0)(x + 4)$ oe Award B1 for factors which, when expanded and simplified, give **two** terms, one of which is correct except B0 for $(x + 2)(x − 2)$
	(c)	$2^3 + 5 \times 2$ or 8 + 10		2	M1
			18		A1 cao
					Total 5 marks

Question	Working	Answer	Mark	Notes
12 (a)	Enlargement, scale factor 3, centre (4, 3)		3	B3 B1 for enlargement, enlarge etc B1 for 3, ×3, three, $\frac{3}{1}$ B1for (4, 3) Condone omission of brackets but do not accept $\begin{pmatrix}4\\3\end{pmatrix}$ These marks are independent but award no marks if the answer is not a single transformation
(b)	**R** correct [vertices at (5, 8) (5, 14) and (2, 8)]		1	B1 Condone omission of label R
				Total 4 marks

Question	Working	Answer	Mark	Notes
13 (a)	750 : 350 oe		2	M1 Also award for 7 : 15, 15 to 7
		15 : 7		A1
(b)	$900 \times \frac{13}{6}$		2	M1 for $\frac{900}{6}$ or 150 or $\frac{13}{6}$ (= 2.16…) oe or 900×13 or 11 700
		1950		A1 cao
(c)	$6 \times \frac{1250}{750}$ or $1250 \div \frac{750}{6}$		2	M1 for $\frac{1250}{750}$ oe(= 1.66…) or $\frac{750}{1250}$ oe (= 0.6) or $\frac{750}{6}$ oe (=125)
		10		A1 cao
				Total 6 marks

Question	Working	Answer	Mark	Notes
14	852×10.75 **or** $10\frac{3}{4} \times 852$ **or** $\frac{645 \times 852}{60}$		3	M2 M1 for 852×10.45 or 8903.4 or 852×645 or 549 540
		9159		A1 cao
				Total 3 marks

Question	Working	Answer	Mark	Notes		
15	sin 43 used		3	M1	or M1 for $7.8\cos 43°$ (5.704...) **and** $7.8^2 - "5.704"^2$ (28.298) M1 for $\sqrt{"28.298"}$	or M1 for correct statement of Sine Rule eg $\frac{7.8}{\sin 90°} = \frac{x}{\sin 43°}$ M1 for correct expression for x eg $x = \frac{7.8\sin 43°}{\sin 90°}$
	$7.8\sin 43°$			M1		
		5.32		A1	for awrt 5.32 (5.319587...)	
						Total 3 marks

Question	Working	Answer	Mark	Notes
16 (a)	$\frac{32+14+6}{80}\times 100$ oe		2	M1 for $\frac{32+14+6}{80}$ or 0.65
		65		A1 cao
(b)	$2.85 \times 2 + 2.95 \times 4 + 3.05 \times 22 + 3.15 \times 32 + 3.25 \times 14 + 3.35 \times 6$ or $5.7 + 11.8 + 67.1 + 100.8 + 45.5 + 20.1$		3	M1 for at least two products $f \times x$ consistently within intervals (inc end points)
				M1 for complete correct method (condone any one error) NB. products do **not** need to be evaluated
		251	A1	cao
				Total 5 marks

Question	Working	Answer	Mark	Notes
17 (a)		2^7	1	B1 cao
(b)	$\frac{280}{35}$ **or** $\frac{280}{5\times 7}$ **or** 8 **or** $280 = 8 \times 5 \times 7$ **or** 2^3 **or** fully correct factor tree or repeated division or 2, 2, 2, 5, 7 or $2 \times 2 \times 2 \times 5 \times 7$		2	M1
		3		A1 cao
				Total 3 marks

Question	Working	Answer	Mark	Notes
18 (a)		$-1 < x \leq 4$	2	B2 Also accept $x > -1$ **and** $x \leq 4$ or $4 \geq x > -1$ B1 for a double-ended inequality which is correct at one end (ignore the other end) eg. $-1 \leq x \leq 4$, $-1 < x > 4$ **or** $-1 \leq x < 4$ **or** award B1 for an answer of $x > -1$ **or** $x \leq 4$
(b)(i)	$2y - 6 \geq 1$		2	M1 M2 for $y - 3 \geq \frac{1}{2}$
	$2y \geq 7$			M1 For method marks condone use of > instead of ≥
		$y \geq 3\frac{1}{2}$ oe	2	A1
(ii)		4		B1 cao
				Total 6 marks

Question	Working	Answer	Mark	Notes
19	$\angle POT = 58°$		3	M1 May be stated or marked on diagram
	$\angle OTP = 90°$			M1 May be stated or marked on diagram
		32		A1 cao
				Total 3 marks

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