

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

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

January 2015

Publications Code UG040580

All the material in this publication is copyright

© Pearson Education Ltd 2015

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.	$8 \times 0.6(0)$ 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) $5.5 \times "4"$
(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	2	B1 shown as sixth term
		55		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)	$13 + 19 \times 7$ or $20 \times 7 + 6$ or $7n + 6$ Or 13, 20, 27,, 139, 146 (list of 20 terms)		2	M1 allow $13 + 20 \times 7$ 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		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			M1
		Correct reflection	2	A1
				Total 6 Marks

Question	Working	Answer	Mark	Notes
10. (a)		1 000	1	B1
(b)	$\frac{875}{2.5}$			M1
		350	2	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)	$\frac{12 + 35 + 4 + 67 + 32 + 54}{6} \text{ or } \frac{204}{6}$ $(12 + 35 + 4 + 67 + 32 + 54) \div 6$		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)
(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		2	M1
		30 000		A1
(b)	9000 ÷ 120		2	M1
		75		A1
(c)	50 × 1.2 × 120 or 50 × 1.2 or 60 or 1.2 × 120 or 144		2	M1 Allow $\frac{50 \times 120}{120}$
		7200		A1 SCB1 for 5000 or $\frac{50 \times 120}{1.2}$ 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.	<p>eg $15 \times 12 + \frac{1}{2} \times 12 \times 10 - \frac{1}{2} \times 12 \times 4$ or $180 + 60 - 24$ or $(10 + 15) \times 12 - (\frac{1}{2} \times 12 \times 4 + \frac{1}{2} \times 10 \times 6 + \frac{1}{2} \times 10 \times 6)$ or $300 - (24 + 30 + 30)$ or $2 \times \frac{1}{2} (15 + 21) \times 6$ or 2×108</p> <p>eg $\frac{1}{2} \times 4 \times 12$ and $\frac{1}{2} \times 10 \times 6$ (24 and 30) or $\frac{1}{2} \times 4 \times 12$ and $\frac{1}{2} \times 10 \times 12$ (24 and 60) or $\frac{1}{2} \times 4 \times 6$ and $\frac{1}{2} \times 10 \times 6$ (12 and 30) or $\frac{1}{2} \times 4 \times 6$ and $\frac{1}{2} \times 10 \times 12$ (12 and 60) or $\frac{1}{2} (15 + 21) \times 6$ or 108 or $\frac{1}{2} (15 + 11) \times 6$ or 78</p> <p>eg $\frac{1}{2} \times 4 \times 6$ or 12 or $\frac{1}{2} \times 4 \times 12$ or 24 or $\frac{1}{2} \times 10 \times 6$ or 30 or $\frac{1}{2} \times 10 \times 12$ or 60 or $\frac{1}{2} \times 11 \times 6$ or 33 or $\frac{1}{2} \times 11 \times 12$ or 66 or $\frac{1}{2} \times 15 \times 6$ 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</p>			<p>M3 For a complete method.</p> <p>If not M3 then M2 for 2 different but non overlapping triangles or 1 trapezium</p> <p>If not M2 then M1 for a correct area of a triangle or rectangle.</p> <p>NB : The lists of examples are not exhaustive.</p>
		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)	$1 - 0.08 - 0.1$			M1
		0.82	2	A1 oe eg accept 82/100
(c)	$\frac{20}{100} \times 60$ oe			M1
		12	2	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)	$6c - 15 - 2c + 8$			M1 Any three terms correct
		$4c - 7$	2	A1
(b)		$16e^6$	2	B2 B1 for 16 or e^6 as part of a product or B1 for $4^2 \times e^{2 \times 3}$
(c)	$a^2 + 5a - a - 5$			M1 any three terms correct or $a^2 + 4a + \dots$ or $\dots + 4a - 5$
		$a^2 + 4a - 5$	2	A1
				Total 6 marks

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

Pearson Education Limited. Registered company number 872828
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE