Pearson Edexcel

Mark Scheme (Results)

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Pearson Edexcel International GCSE Mathematics A (4MA0) Foundation Tier Paper 2F

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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.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

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

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

  If a candidate misreads a number from the question. Eg. Uses 252 instead of 255; method marks may be awarded provided the question has not been simplified. Examiners should send any instance of a suspected misread to review.

  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.

Apart from Questions 16(a)(ii), 21a and 22, 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)		160	1	B1
(b)		48	1	B1
(c)		grams	1	B1 Accept g
2 (a)		five thousand nine hundred (and) five	1	B1
(b)		10 100	1	B1
(c)		72	1	B1
(d) (i)		$(5+7) \times 3 = 36$	1	B1
(ii)		$2 \times (8-3) + 7 = 17$	1	B1
3 (a)		2.9	1	B1 Allow 2.7 to 3.1
(b)		34	1	B1 Allow 32 to 36
(c)		isosceles	1	B1
(d)		angles are not all equal	1	B1

Question	Working	Answer	Mark	Notes
4 (a)		3, 2, 5	2	B2 Award B1 for one correct value.
(b)		Correct bars drawn in correct positions	2	B2 ft from (a) for non-zero frequencies Award B1ft for one correct bar in correct position or for 3 bars in the right order with the correct height, ignoring errors in the width and/or position.
(c)	$\dfrac{6}{n}$ $(n > 6)$ or $\dfrac{m}{28}$ $(0 < m < 28)$	$\dfrac{6}{28}$	2	M1 For correct numerator or denominator in a fraction between 0 and 1 or for the ratio 6:28. A1 oe $\dfrac{3}{14}$, 0.21(428…)
5 (a)		8	1	B1
(b) (i)		5	1	B1
(ii)		9	1	B1

Question		Working	Answer	Mark	Notes	
6	(a) (i)		11	1	B1	
	(ii)	2×2 or 29 **and** 33	4	2	M1	Allow difference of two numbers 4 apart. Eg $34 - 30$
					A1	Accept -4
	(b) (i)		36	1	B1	SC B1 for (i) 6^2 and (ii) 20^2
	(ii)		400	1	B1	
	(c)		17	1	B1	
7	(a)		3 squares shaded	1	B1	
	(b)		0.3	1	B1	0.30
	(c)	$\dfrac{15}{25} \times 100$ or $\dfrac{60}{100}$	60	2	M1 A1	
	(d) (i)	$\dfrac{36}{72}, \dfrac{33}{72}, \dfrac{32}{72}, \dfrac{38}{72}, \dfrac{35}{72}$ or 0.5, 0.458…, 0.444…, 0.527…, 0.486…	$\dfrac{4}{9}$	2	M1	Show at least 3 fractions correctly with a common denominator or as decimals rounded or truncated to at least 2DP. Working may be shown in (i) or (ii).
					A1	0.44(4…) rounded or truncated to at least 2DP
	(ii)		$\dfrac{19}{36}$	1	A1	0.52(7…) rounded or truncated to at least 2DP

Question	Working	Answer	Mark	Notes
8 (a)		(1, 2)	1	B1
(b)		Correct point on grid	1	B1 Ignore label if unambiguous.
(c)		$x = 3$	1	B1 $x - 3 = 0$
9 (a)		-4	1	B1
(b)		2	1	B1
(c)		-8	1	B1
10 (a)	$\dfrac{25}{100} \times 10\,000$	2500	2	M1 A1
(b)		10^9	1	B1
(c)		100	1	B1
11 (a)		20, 20, 50, 50, 50 20, 50, 10, 20, 50	2	B2 Award B1 for 3 pairs correct.
(b)	$\dfrac{m}{n}$	$\dfrac{2}{9}$	2	M1 for integers m or n correct and $m < n$ ft their table A1 ft their table Accept decimal to 2DP or better.

	Question	Working	Answer	Mark	Notes
12	(a)		95	1	B1
	(b)	$y + 95 + 95 + 70 = 360$ or $360 - (95 + 95 + 70)$	100	2	M1 ft from (a) A1 ft from (a)
	(c)	$2w + 96 = 360$ or $\dfrac{360 - 96}{2}$	132	2	M1 A1
13	(a)	$20 \times 1.8 + 32$	68	2	M1 A1
	(b)	$\dfrac{77 - 32}{1.8}$ or $(77 - 32) \div 1.8$	25	2	M1 A1
14	(a)	$1 - 0.43$	0.57	2	M1 A1 oe
	(b)	200×0.43	86	2	M1 Accept 200×0.57 ft from (a) for value between 0 and 1. A1 Award M1 A0 for $\dfrac{86}{200}$

Question	Working	Answer	Mark	Notes
15 (a)	$\dfrac{30}{20} \times 240$ or $240 + \dfrac{1}{2} \times 240$	360	2	M1 A1
(b)	$\dfrac{150}{125} \times 100$ or $\left(\dfrac{150}{125} \times 20\right) \times \dfrac{100}{20}$ or $\left(150 \div \dfrac{125}{20}\right) \times \dfrac{100}{20}$ or $\dfrac{100}{20} \times 24$ oe	120	2	M1 A complete method. A1
(c)	$125 : 75$	0.6	2	M1 Any correct ratio eg 5:3 A1 $1:0.6$ or $1:\frac{3}{5}$
16 (a) (i)		58	1	B1
(ii)		Alternate (angles)	1	B1 dep on (i) correct or other **complete** reason
(b)	$180 + 58$ or $360 - (180 - 58)$	238	2	M1 A1

Question		Working	Answer	Mark	Notes		
17	(a)		32	1	B1		
	(b)	$2e = 15 + 7$	11	2	M1 A1		
	(c)		$3xy + y^2$	2	M1 A1	for two terms with one term correct.	
	(d)	$6^2 - 4(-5)$ or $6^2 - 4 \times -5$ or $6^2 + 20$	56	2	M1 A1		
	(e)	$8w < 41 - 7$ or 4.25	$w < 4.25$	2	M1 A1	Accept with $\leqslant$ Accept $w < 4\dfrac{1}{4}$, $w < \dfrac{17}{4}$, $w < \dfrac{34}{8}$	
18	(a)	(5, 4), (5, 3), (8, 3), (8, 5), (7, 5), (7, 4)	Correct shape	2	B2	B1 for any translation of the correct reflection.	
	(b)		rotation 90° clockwise (centre) (1, 6)	3	B1 B1 B1	$270°, -90°$	A description that involves more than one transformation scores B0.

Question	Working	Answer	Mark	Notes	
19	$1 \times 10.5 + 5 \times 30.5 + 8 \times 50.5 + 10 \times 70.5 + 6 \times 90.5$ or $10.5 + 152.5 + 404 + 705 + 543$ or 1815	60.5	4	M2	At least four correct products with evidence of addition. Award M1 for at least four products using consistent values within the intervals which are not mid-values (including ends) and evidence of addition, or for at least four correct products with no evidence of addition.
	$(1 \times 10.5 + 5 \times 30.5 + 8 \times 50.5 + 10 \times 70.5 + 6 \times 90.5) \div 30$ or $(10.5 + 152.5 + 404 + 705 + 543)/30$ or $1815/30$			M1	dep on M1
				A1	Accept 60 or 61 if correct working is shown.
20	$(AC^2 =) 12.5^2 + 30^2$ $(= 156.25 + 900 = 1056.25)$ $(AC =) \sqrt{12.5^2 + 30^2}$	32.5	3	M1 M1	**SC** M2 for 2.5×13 oe
				A1	oe

Question		Working	Answer	mark	Notes	
21	(a)	eg 2, 5, 98 eg 5, 7, 28	$2^2 \times 5 \times 7^2$	3	M1	At least two correct steps, which may be seen in a factor tree.
		2, 2, 5, 7, 7			M1	dep on M1 correct factors (condone inclusion of 1)
				2	A1	dep on M1
	(b)	$\dfrac{3^{11}}{3^5}$ or $3^4 \times 3^2$ or $\dfrac{3^7}{3}$	3^6		M1	
					A1	
22		$7x + 3x = 25$ oe or $7 \times \frac{1}{3}y + y = 25$ oe	$x = 2.5, y = 7.5$	3	M1	Complete, correct method to eliminate one variable.
		$y = 3 \times "2.5"$ or $7 \times "2.5" + y = 25$ or $"7.5" = 3x$ or $7x + "7.5" = 25$			M1	dep on M1 Substitute to find second variable.
					A1	dep on M1