Mark Scheme (Results)

Summer 2025

Pearson Edexcel International GCSE
In Mathematics A (4WM1) Paper 1FR

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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
- awrt – answer which rounds to
- 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, mark the method that leads to the answer on the answer line; where no answer is given on the answer line, award the lowest mark from the methods shown.

  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 to another.

International GCSE Maths					
Values in quotation marks must come from a correct method previously seen unless clearly stated otherwise.					
Q		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		Montana	1	B1
	(b)		314 200	1	B1
	(c)		4 thousand(s)	1	B1 accept 4000, thousands
	(d)		420 727	1	B1
	(e)		Twenty three thousand, eight hundred (and) seventy one	1	B1
					Total 5 marks

2	(a)		unlikely	1	B1
	(b)		× at 1	1	B1
	(c)		2 numbers which are even	1	B1
					Total 3 marks

3	(a)		7	1	B1 cao
	(b)		obtuse	1	B1 A correct indication that it is obtuse eg cross (×)
	(c)		octagon	1	B1 A correct indication that it is an octagon eg cross (×)
					Total 3 marks

4	(a)		0.9	1	B1
	(b)		6	1	B1
	(c)		15 squares shaded	1	B1
	(d)		$\frac{2}{500}$	1	B1
	(e)	eg $\frac{32-8}{32}$ oe or $1-\frac{8}{32}$ oe or $\frac{32}{32}-\frac{8}{32}$ oe or $\frac{24}{32}$ or 0.75 or $\frac{1}{4}$		2	M1
		Correct answer scores full marks (unless from obvious incorrect working)	$\frac{3}{4}$		A1 cao
					Total 6 marks

5	(a)		(1, 3)	1	B1
	(b)		(4, 0)	1	B1 SC B1 for (a) (3, 1) (b) (0, 4)
	(c)		Cross at (−2, −4)	1	B1 Condone lack of label if meaning is clear
					Total 3 marks

6	(a)		$4e$	1	B1	Allow $e4$ Allow upper case letter
	(b)		$7p - 6k$	2	B2	oe eg. $-6k + 7p$ B1 for $7p$ or $-6k$
	(c)		8	1	B1	
	(d)	$4x = 32 - 9$ or $4x = 23$ or $x + \frac{9}{4} = \frac{32}{4}$ or $x + 2.25 = 8$ or $9 - 32 = -4x$ or $-23 = -4x$ or $(32 - 9) \div 4$ oe		2	M1	for a correct first step or a calculation for x
		Correct answer scores full marks (unless from obvious incorrect working)	$\frac{23}{4}$		A1	oe eg. 5.75 or $5\frac{3}{4}$ Allow 5,75
	(e)	6×9 or 54 **and** $\pm 2 \times 15$ oe or ± 30		2	M1	
		Correct answer scores full marks (unless from obvious incorrect working)	24		A1	SC B1 for 84 or 72
						Total 8 marks

7	$3 \times 1.6(0)$ (= 4.8(0)) oe or 2×2.15 (= 4.3(0)) oe or 10.35 – 1.60 – 1.60 – 1.60 (= 5.55) oe or 10.35 – 2.15 – 2.15 (= 6.05) oe		3	M1	
	$3 \times 1.6(0) + 2 \times 2.15$ (= 9.1(0)) oe or "4.8(0)" + "4.3(0) (= 9.1(0)) oe or 10.35 – 1.60 – 1.60 – 1.60 – 2.15 – 2.15 oe			M1	
	Correct answer scores full marks (unless from obvious incorrect working)	1.25		A1	SC B1 for 6.6(0)
					Total 3 marks

8 (a)		Reason given	1	B1	vertically opposite angles are equal **or** vertically opposite angles are equal **or** opposite to 58(°)
(b)	(*JGH* =) 360 – 163 – 90 – 47 (= 60) **or** (*JGH* =) 180 – 110 (= 70)		4	M1	for a method to find angle *JGH* either using the quadrilateral **or** assuming line *FGH* is straight
	Correct answer scores full marks (unless from obvious incorrect working)			A1	for (110 + 60 =) 170 **or** 110 + 60 ≠ 180 **or** **(**180 – 60 =) 120 **or** (70 + 163 + 90 + 47 =) 370 **or** 70 + 163 + 90 + 47 ≠ 360 **or** (180 – 110 =) 70 **and** (360 – 163 – 90 – 47 =) 60
				B1	angles on a straight line add to 180° **or** angles on a straight line add to 180°
				B1	angles in a quad(rilateral) add up to 360 **or** angles in a quad(rilateral) add up to 360 (Accept 4-sided shape)
					Total 5 marks

<table>
<tr>
<td>9</td>
<td>(a)</td>
<td>
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<tr><th></th><th>French</th><th>Spanish</th><th>Italian</th><th>Total</th></tr>
<tr><td>Year 12</td><td>26</td><td>13</td><td>31</td><td>70</td></tr>
<tr><td>Year 13</td><td>22</td><td>12</td><td>16</td><td>50</td></tr>
<tr><td>Total</td><td>48</td><td>25</td><td>47</td><td>120</td></tr>
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</td>
<td>Correct values</td>
<td>3</td>
<td>B3</td>
<td>for all correct values
(B2 for 4 or 5 correct values
B1 for 2 or 3 correct values)</td>
</tr>
<tr>
<td></td>
<td>(b)</td>
<td></td>
<td>$\frac{26}{120}$</td>
<td>1</td>
<td>B1</td>
<td>oe eg $\frac{13}{60}$ or 0.21(666…) or 21(.666)% truncated or rounded</td>
</tr>
<tr>
<td></td>
<td>(c)</td>
<td></td>
<td>0.37</td>
<td>1</td>
<td>B1</td>
<td>oe eg $\frac{37}{100}$ or 37%
NB Penalise incorrect notation only once</td>
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<td></td>
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<td>Total 5 marks</td>
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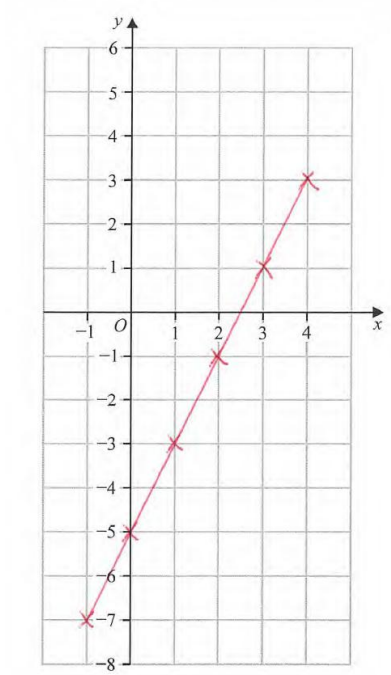
10	(−1, −7) (0, −5) (1, −3) (2, −1) (3, 1) (4, 3)  	For a correct line between $x = -1$ and $x = 4$	3	B3 for a correct line between $x = -1$ and $x = 4$ B2 for a correct straight line segment through at least 3 of (−1, −7) (0, −5) (1, −3) (2, −1) (3, 1) (4, 3) **or** for all of (−1, −7) (0, −5) (1, −3) (2, −1) (3, 1) (4, 3) plotted but not joined B1 for at least 2 correct points stated (may be in a table) **or** for a line drawn with a positive gradient through (0, −5) **or** for a line with a gradient of 2
				Total 3 marks

11	$\frac{80 \times 60}{2}$ oe		2	M1	for any 2 correct values from 80 or 60 or 2
	Working required	2400		A1	dep on M1 2400 must come from using the figures 80, 60 and 2
					Total 2 marks

12		2320	2	B2	for 2320 (B1 for 2304 or 3328 or 16 + 36 × 64)
					Total 2 marks

13	$\pi \times 6^2$ (= 36π = 113.(097…))		3	M1	Allow 3.14… or $\frac{22}{7}$ for π
	"113.(097…)" ÷ 8 (= 14(.137…))			M1	dep on M1
	Working required	15		A1	dep on M1 SC B1 for $\frac{2\times\pi\times6}{8}=5$ oe or $\frac{12\times\pi}{8}=5$ oe or $\frac{37.6(991...)}{8}=5$ oe
					Total 3 marks

14	6 – 3.5 (= 2.5) **or** 4 × 6 + 4 × 3.5 (= 38) **or** 6 × 6 + 6 × 3.5 (= 57) or 2 × 9.5 × 3 (= 57) or 19 × 3 (= 57)		4	M1	for a method to find the 'missing length' (may be shown on the diagram) **or** for a method to find the length of the solid lines excluding 2.5 cm may include extra sides added **or** for a method to find the perimeter of the 3 rectangles
	4 × 6 + 4 × 3.5 + 2 × "2.5" (= 43) or 6 × 6 + 6 × 3.5 – 4 × 3.5 (= 43) or 2 × 9.5 × 3 – 4 × 3.5 (= 43) or 19 × 3 – 4 × 3.5 (= 43)			M1	for a complete method to find the perimeter of the shape
	eg "43" × 7.6			M1	for a method to find the cost, allow use of their "43" as long as from adding at least 4 correct lengths including a length of 3.5 **and** a length of 6 eg 57 × 7.6(0) or 38 × 7.6(0)
	Correct answer scores full marks (unless from obvious incorrect working)	326.8(0)		A1	
					Total 4 marks

15	eg 119 ÷ 140 (× 100) or 0.85 (× 100) or $\frac{17}{20}$ (× 100) oe		2	M1	
	Correct answer scores full marks (unless from obvious incorrect working)	85		A1	
					Total 2 marks

16	(i)		$\frac{10}{50}$	1	B1	oe eg $\frac{1}{5}$ or 0.2 or 20%
	(ii)	15 + 7 (= 22) or 50 – 10 – 18 (= 22)		2	M1	
		Correct answer scores full marks (unless from obvious incorrect working)	$\frac{22}{50}$		A1	oe eg $\frac{11}{25}$ or 0.44 or 44% condone incorrect notation once only
						Total 3 marks

17		142.75	1	B1	
		142.85	1	B1	accept 142.8499... or $142.84\dot{9}$
					Total 2 marks

18	eg $\frac{9}{4}$ **and** $\frac{12}{7}$		3	M1	for $2\frac{1}{4}$ and $1\frac{5}{7}$ expressed as improper fractions
	eg $\frac{9}{\cancel{4}^{1}} \times \frac{\cancel{12}^{3}}{7}$ **or** $\frac{9}{4} \times \frac{12}{7} = \frac{108}{28}$ **or** $\frac{63}{28} \times \frac{48}{28} = \frac{3024}{784}$			M1	correct cancelling or multiplication of numerators and denominators without cancelling
	eg $\frac{9}{\cancel{4}^{1}} \times \frac{\cancel{12}^{3}}{7} = \frac{27}{7} = 3\frac{6}{7}$ **or** $\frac{9}{4} \times \frac{12}{7} = \frac{108}{28} = \frac{27}{7} = 3\frac{6}{7}$ **or** $\frac{9}{4} \times \frac{12}{7} = \frac{108}{28} = 3\frac{24}{28} = 3\frac{6}{7}$ **or** $\frac{9}{4} \times \frac{12}{7} = \frac{63}{28} \times \frac{48}{28} = \frac{3024}{784} = \frac{27}{7} = 3\frac{6}{7}$ **or** $\frac{9}{4} \times \frac{12}{7} = \frac{63}{28} \times \frac{48}{28} = \frac{3024}{784} = 3\frac{672}{784} = 3\frac{6}{7}$ **or** correct working to $\frac{27}{7}$ **and** writing $3\frac{6}{7} = \frac{27}{7}$ *Working required*	shown		A1	dep on M2, for conclusion to $3\frac{6}{7}$ from correct working – either sight of the result of the multiplication e.g. $\frac{108}{28}$ oe must be seen **or** correct cancelling prior to the multiplication to $\frac{27}{7}$ NB: use of decimals scores no marks unless as a check
					Total 3 marks

19	(a)		0.7	1	B1	oe eg $\frac{7}{10}$ oe or 70% or $\frac{0.7}{1}$ If probabilities are given as percentages then % sign must be seen
	(b)	eg 1 – (0.12 + 0.2 + 0.38) (= 0.3) oe **or** 1 – "0.7" (= 0.3) oe **or** 0.12 + 0.20 + 0.38 + 4x + x = 1 oe **or** "0.7" × 350 (= 245) oe **or** 0.12 × 350 (= 42) **or** 0.38 × 350 (= 133)		4	M1	ft their "0.7" If probabilities are given as percentages then % sign must be seen
		eg "0.3" ÷ 5 (= 0.06) **or** "0.3" ÷ 5 × 4 (= 0.24) **or** 0.24 **or** (x =) 0.06 **or** (4x =) 0.24 **or** "0.3" × 350 (= 105) oe **or** 350 – "245" (= 105) oe **or** 350 – "42" – 0.20 × 350 – "133" (=105) oe			M1	
		eg "0.06" × 350 (= 21) oe **or** "105" ÷ 5 (= 21) oe **or** "0.06" × 4 × 350 oe **or** "0.24" × 350			M1	or for $\frac{21}{350}$ or $\frac{84}{350}$
		Correct answer scores full marks (unless from obvious incorrect working)	84		A1	cao
						Total 5 marks

20	(a)(i)		2, 3, 4, 6, 8, 9, 10, 12	1	B1	
	(ii)		1, 2, 4, 5, 7, 8, 10, 11	1	B1	
	(b)(i)		$\varnothing$	1	B1	
	(ii)		$\notin$	1	B1	
						Total 4 marks

21	(a)		12	1	B1	Allow 3^{12}
	(b)		5	1	B1	Allow 4^5
	(c)		20	1	B1	Allow 6^{20}
	(d)		0	1	B1	Allow 5^0
						Total 4 marks

22	$4x + 6 = 30 - x$ oe		3	M1	for equating the 2 expressions
	$4x + x = 30 - 6$ or $5x = 24$ or $6 - 30 = -x - 4x$ or $-24 = -5x$			M1	for collecting x terms on one side and the number terms on the other side
	Correct answer scores full marks (unless from obvious incorrect working)	4.8		A1	oe eg $\frac{24}{5}$
					Total 3 marks

23	40 ÷ 1000 (= 0.04) oe **or** 40 × 60 × 60 (= 144 000) oe **or** $40 \div \frac{1}{3600}$ (= 144 000) oe **or** 40 ÷ 1000 × 60 ($= \frac{12}{5} = 2.4$) **or** $\frac{3600}{1000}$ or $\frac{18}{5}$ or 3.6 oe **or** $\frac{1000}{3600}$ or $\frac{5}{18}$ or 0.277(7…) oe		3	M1
	$\frac{40 \times 60 \times 60}{1000}$ oe **or** 40×3.6 oe **or** $40 \div \frac{1000}{3600}$ oe **or** $\frac{0.04}{2.77(777...) \times 10^{-4}}$ oe			M1 for a complete method
	Working required	144		A1 dep on M2
				Total 3 marks

24	$\tan 32 = \frac{17}{(BD)}$ or $\tan 58 = \frac{(BD)}{17}$ or $\frac{(BD)}{\sin 58} = \frac{17}{\sin 32}$ oe	M2 for $(CD =) \frac{17}{\sin 32}(32.0(803...))$ or $(CD =) \frac{17}{\cos 58}(32.0(803...))$ **and** $(BD =) \sqrt{"32.0"^2 - 17^2}$ (= 27.2(05…))		4	M1	Allow trig values to 2 dp truncated or rounded
	$(BD =) \frac{17}{\tan 32}$ (= 27.2(05…)) or $(BD =) 17 \times \tan 58$ (= 27.2(05…)) or $(BD =) \frac{17}{\sin 32} \times \sin 58$ oe (= 27.2(05…))				M1	
	$\sin 65 = \frac{(AD)}{"27.2"}$ or $(AD =) "27.2" \times \sin 65$ or $\cos 25 = \frac{(AD)}{"27.2"}$ or $(AD =) "27.2" \times \cos 25$ or $\frac{(AD)}{\sin 65} = \frac{"27.2"}{\sin 90}$ oe or $(AD =) \frac{"27.2"}{\sin 90} \times \sin 65$ or $(AB =) "27.2" \times \cos 65 (= 11.4(976...))$ **and** $(AD =) \sqrt{"27.2"^2 - "11.4"^2}$ or $(AB =) "27.2" \times \sin 25 (= 11.4(976...))$ **and** $(AD =) \sqrt{"27.2"^2 - "11.4"^2}$				M1	
	Correct answer scores full marks (unless from obvious incorrect working)		24.7		A1	Allow 24.6 – 24.7
						Total 4 marks

25	(a)		$25k^6n^8$	2	B2	for $25k^6n^8$ B1 for a product in the form ak^pn^q where 2 from a, p or q are correct eg $5k^6n^8$ (Allow $25k^6$or $25n^8$or $2k^6n^8$ so as long as not added to any other terms)
	(b)		$6m^2y(2y^3 + 3m)$	2	B2	for $6m^2y(2y^3 + 3m)$ B1 for any **correct** partial factorisation with at least 2 factors outside the bracket eg $3m^2y(4y^3 + 6m)$ or $2m^2y(6y^3 + 9m)$ or $m^2y(12y^3 + 18m)$ or $6m^2(2y^4 + 3my)$ or $6y(2m^2y^3 + 3m^3)$ $6my(2my^3 + 3m^2)$ or $3my(4my^3 + 6m^2)$ or $2my(6my^3 + 9m^2)$ etc **or** for a correct factor with one error inside the bracket eg. $6m^2y(a + 3m)$ or $6m^2y(2y^3 + b)$
	(c) (i)	$(x \pm 6)(x \pm 7)$ or $(6 \pm x)(7 \pm x)$ or $x(x – 6) – 7(x – 6)$ or $x(x – 7) – 6(x – 7)$		2	M1	or for $(x + a)(x + b)$ where $ab = 42$ or $a + b = −13$
		Correct answer scores full marks (unless from obvious incorrect working)	$(x − 6)(x – 7)$		A1	A1 oe Allow any letter for x
	(ii)		6, 7	1	B1	B1 must ft from their answer to (b)(i) ft from their incorrect factors in the form $(x + a)(x + b)$
						Total 7 marks

26	$DC^2 + 8^2 = 17^2$ or $DC^2 + 64 = 289$ or $DC^2 = 17^2 - 8^2$ or $DC^2 = 289 - 64$	M2 for $(BDC =)\sin^{-1}\left(\frac{8}{17}\right) = 28.0(724...)$ **and** $(DC =)17 \times \cos"28.0"(=15)$ or $(DC =)\frac{8}{\tan"28.0"}(=15)$ **OR** $(DBC =)\cos^{-1}\left(\frac{8}{17}\right) = 61.9(275...)$ **and** $(DC =)17 \times \sin"61.9"(=15)$ or $(DC =)8 \times \tan"61.9"(=15)$		5	M1 for finding the length of DC^2
	$DC = \sqrt{17^2 - 8^2}$ $\left(= \sqrt{289 - 64} = \sqrt{225} = 15\right)$				M1 for finding the length of DC
	"15" × 8 (= 120)				M1 ft for finding the area of the rectangle (use of their value for DC) NB Do not award for 17 × 8 (÷ 2) or 136 (÷ 2) or 68
	$\frac{150}{"120"}$ oe				M1 dep on previous M1 ft for using the formula correctly (use of their value for DC)
	Correct answer scores full marks (unless from obvious incorrect working)		1.25		A1 oe eg. $\frac{5}{4}$ If no M marks awarded then award SCB1 for $\frac{150}{17 \times 8}\left(= \frac{150}{136} = 1.1(029...)\right)$
					Total 5 marks

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