



Pearson

Mark Scheme

Mock Set 4

Pearson Edexcel GCSE (9 – 1)

In Mathematics (1MA1)

Foundation (Non-Calculator) Paper 1F

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Summer 2018

Publications Code

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General marking guidance

These notes offer general guidance, but the specific notes for examiners appertaining to individual questions take precedence.

- 1 All candidates must receive the same treatment. Examiners must mark the last candidate in exactly the same way as they mark the first.

Where some judgement is required, mark schemes will provide the principles by which marks will be awarded; exemplification/indicative content will not be exhaustive. When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the response should be sent to review.

- 2 All the marks on the mark scheme are designed to be awarded; mark schemes should be applied positively. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme. If there is a wrong answer (or no 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.

Questions where working is not required: In general, the correct answer should be given full marks.

Questions that specifically require working: In general, candidates who do not show working on this type of question will get no marks – full details will be given in the mark scheme for each individual question.

- 3 **Crossed out work**

This should be marked **unless** the candidate has replaced it with an alternative response.

- 4 **Choice of method**

If there is a choice of methods shown, mark the method that leads to the answer given on the answer line.

If no answer appears on the answer line, mark both methods **then award the lower number of marks.**

- 5 **Incorrect method**

If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review for your Team Leader to check.

- 6 **Follow through marks**

Follow through marks which involve a single stage calculation can be awarded without working as you can check the answer, but if ambiguous do not award.

Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

7 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 or its context. (eg. an incorrectly cancelled fraction when the unsimplified fraction would gain full marks).

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect (eg. incorrect algebraic simplification).

8 Probability

Probability answers must be given as a fraction, percentage or decimal. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).

Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.

If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

9 Linear equations

Unless indicated otherwise in the mark scheme, full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously identified in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

10 Range of answers

Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and all numbers within the range.

11 Number in brackets after a calculation

Where there is a number in brackets after a calculation E.g. $2 \times 6 (=12)$ then the mark can be awarded **either** for the correct method, implied by the calculation **or** for the correct answer to the calculation.

12 Use of inverted commas

Some numbers in the mark scheme will appear inside inverted commas E.g. "12" \times 50 ; the number in inverted commas cannot be any number – it must come from a correct method or process but the candidate may make an arithmetic error in their working.

13 Word in square brackets

Where a word is used in square brackets E.g. [area] \times 1.5 : the value used for [area] does **not** have to come from a correct method or process but is the value that the candidate believes is the area. If there are any constraints on the value that can be used, details will be given in the mark scheme.

14 Misread

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

Guidance on the use of abbreviations within this mark scheme

M	method mark awarded for a correct method or partial method
P	process mark awarded for a correct process as part of a problem solving question
A	accuracy mark (awarded after a correct method or process; if no method or process is seen then full marks for the question are implied but see individual mark schemes for more details)
C	communication mark awarded for a fully correct statement(s) with no contradiction or ambiguity
B	unconditional accuracy mark (no method needed)
oe	or equivalent
cao	correct answer only
ft	follow through (when appropriate as per mark scheme)
sc	special case
dep	dependent (on a previous mark)
indep	independent
awrt	answer which rounds to
isw	ignore subsequent working

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
1	4.06, 4.3, 4.306, 4.36	B1	for numbers written in order.	Accept written in reverse order
2	0.03	B1	cao	
3	7	B1	cao	
4	7.5(00)	B1	oe	Ignore trailing zeros.
5	$\frac{2}{5}$	B1	cao	
6	Explanation	C1	compares Heron and CIS eg $2 \times \text{CIS}$ is 236 ($>$ Heron 230) or $\frac{1}{2}$ Heron is 115 ($<$ CIS 118)	The explanation does not need to include details given in the question (given in brackets); comparison can be implied
7	(a) 11 (b) 8 (c) $\frac{1}{10}$	B1 B1 B1	cao cao oe	Accept 0.1 or 10% as equivalent
8	(a) (1, 3) (b) (-1, -2) plotted (c) 12	B1 B1 M1 A1	cao Point plotted correctly for method to find area of triangle, eg $\frac{6 \times 4}{2} (= 12)$ or $\frac{4 \times 4}{2} + \frac{2 \times 4}{2} (= 8 + 4)$ oe or $8 + 4 \times \frac{1}{2} + \frac{1}{3} + \frac{2}{3} + \frac{1}{3} + \frac{2}{3}$ cao	Accept a point plotted near to (-1, -2) if the intention is clear. The full method must be shown. If a method of counting squares is shown it is not sufficient just to show the intention: the relevant parts being added must also be shown.


Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
9	17, 19, 23, 29	B2 (B1)	cao for 2 or 3 correct and not more than 1 incorrect or 4 correct and 1 incorrect)	
10	145	M1 A1	for $360 - 90 - 125$ or $x + 90 + 125 = 360$ oe cao	Do not award the mark for recognition of 360 alone; a complete method or equation that would lead to the answer gets this mark. Embedded answers (eg $145+90+125=360$) get M1 alone.
11	2.1	M1 M1 A1	for use of scale eg $7 \times 30\,000 (= 210\,000)$ or starts conversion $30\,000 \div 100 (= 300)$ starts conversion of “210000” to km eg “ $210\,000 \div 100 (= 2100)$ ” or “ $210\,000 \div 100 (= 2100)$ ” or “ $300 \times 7 (= 2100)$ ” cao	Might be shown as part of a ratio. The operations need to be correct. Accept with trailing zeros eg 2.100..
12	90p	P1 P1 A1	for process to find money spent eg $2 \times 1.40 + 2 \times 1.50 + 3 \times 1.10 (= 2.8 + 3 + 3.3)$ oe or 9.1 for a complete process eg $10 - 2 \times 1.40 - 2 \times 1.50 - 3 \times 1.10 (= 10 - “2.8” - “3” - “3.3”)$ oe or $10 - 9.1$ oe or 90 or 0.9(0) for 90p or £0.90; accept £0.90p. SC Award B1 for an answer of £6	Calculations may be done in pence. There must be an intention to sum. Consistent units must be used at this stage. Correct money notation not needed for the process marks. Correct money notation needed with units; 90 or 0.90 alone gets P2. The special case is for those who buy just one unit of each.

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
13	shown (supported)	M1 M1 M1 C1	for using scale diagram, eg 2 m by 1m marked on diagram for method to find number of tiles needed, eg $(200 \div 10) \times (100 \div 10)$ (= 200) for method to find the total cost of tiles needed, eg “200” $\times 0.25$ (= 50) or to find the number of tiles bought, eg $60 \div 0.25$ (= 240) for conclusion from comparison of correct figures, number of tiles or costs eg (cost of tiles=) 50 [£60 not needed] eg 200 and 240 as number of tiles.	Could be shown in working. Award for dimensions of 8 and 4 (cm) written as 2 and 1 At this stage working could be in pence or in £. A written conclusion is not needed, but if given must be correct; showing comparable figures (with supportive working) is sufficient.
14	60	P1 P1 A1	uses $1\frac{1}{2}$ (oe) to find overtime rate eg $10 \times 1\frac{1}{2}$ (= 15) oe or equivalent hours worked eg $4 \times 1\frac{1}{2}$ (= 6) oe for a complete process to find the overtime pay eg $10 \times 1\frac{1}{2} \times 4$ oe cao	Equivalent work to use of $1\frac{1}{2}$ might be 10 + 5 oe or 4 + 2 oe The complete process might be shown as a series of calculations.
15	reflection shown	B2 (B1)	cao : triangle drawn at (-2,1), (-2,4), (-4,1) for reflection in x -axis or a reflection in any line parallel to y axis)	Triangle does not have to be shaded or labelled. Accept triangles drawn freehand. Vertices not drawn accurately can be accepted if the intention is clear.

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
16	5	M1 A1	for showing a scale factor in the range 2.5 to 3.5 for an answer in the range 4 to 6	Stating a scale factor is sufficient; marks on the diagram showing counting up to “3” is indicative of method for this mark.
17 (a)	-5, (-3), -1, 1, 3, (5)	B2 (B1)	for a fully correct table for 2 or 3 correct values)	Points must be plotted to within 2 mm of the correct position. For the ft read off their graph to a tolerance of 2 mm.
(b)	Graph	M1 A1	for correctly plotting at least 4 of their points (provided B1 scored in (a)) or for a straight line with gradient 2 or for a straight line through (0, -1) with a positive gradient correct graph drawn from $x = -2$ to $x = 3$	
(c)	0.7	B1	ft from a single straight line with positive gradient	
18 (a)	$\frac{4}{21}$	M1 A1	converts to multiplication eg $\frac{1}{7} \times \frac{4}{3}$ oe	Any equivalent fraction.
(b)	$\frac{9}{20}$	M1 A1	uses a common denominator with at least one correct matching numerator eg $\frac{5}{20} + \frac{4}{20}$ oe	Any correct common denominator. Any equivalent fraction.

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
19	25, 30, 17	M1 M1 A1 B1	for starting to express amounts as expressions eg $x - 8$ or a correct trial eg $9 + 14 + 1$ for a correct equation eg $x + x - 8 + x + 5 (= 72)$ or for a correct trial totalling 72 eg $25 + 30 + 17$ for correct points attributed to at least one person eg Adam = 25 or Bethany = 30 or Charles = 17 (must have clear association of name to figure) or correct solution to the equation eg $x = 25$ for all three correct	Expressions can be based on Adam, Bethany or Charles as the unknown These do not necessarily need to be the names, as long as the association is unambiguously clear.
20	41	P1 P1 P1 A1	for process to find the time taken, eg 1.45pm – 11.45 am (=2 hours) for process to find the total distance, eg $56 \times "2" (= 112)$ for complete process to find distance between junctions, eg "112" – 43 – 28 cao	Any attempt to find the total time taken; could be shown on the diagram. Distance = time \times speed is not enough without the relevant values
21	$2 \times 2 \times 2 \times 17$	M1 M1 A1	for start of method to identify correct factors, eg 2 correct factors shown in factor tree or two prime number divisions into 136 for complete method to find prime factors; could be shown on a complete factor tree with no more than 1 arithmetic error or 2, 2, 2, 17 for $2 \times 2 \times 2 \times 17$ oe	In any order

Paper: 1MA1/1F					
Question	Answer	Mark	Mark scheme	Additional guidance	
22	(a)	0.4	M1	for $1 - (0.2 + 0.25 + 0.15)$	Acceptable equivalents are $\frac{4}{10}$ or 40% Do not accept $\frac{12}{60}$ (award 1 mark)
			A1	oe	
	(b)	12	M1	for 0.2×60 oe or $\frac{12}{60}$	
			A1	accept “12 out of 60”	
23	statements	B1	for stating that the graph should be a single straight line or graph should have constant gradient	Stating the end point is wrong is sufficient.	
		B1	for stating the line should end at (4, 5) (not (5, 4))		
24	description	B2	for four aspects: <u>rotation</u> of <u>90</u> <u>anticlockwise</u> about <u>(−2, −1)</u>	Accept 270 clockwise. Accept the point written as −2, −1	
		(B1	for two of the above aspects) NB: award 0 marks if there is any mention of a different transformation		
25	diagram	B1	for arc, radius 4 cm centre <i>A</i> drawn	Accept arcs drawn to within 2 mm; arcs of any length are sufficient to indicate method Need not be a construction but should be within 2mm of the midpoint of <i>AB</i> and within 2° of the perpendicular The region need not be labelled but should be clear. Shaded in or out is acceptable as long as not ambiguous.	
		B1	or arc, radius 4 cm centre <i>C</i> drawn for perpendicular bisector of <i>AB</i> drawn		
		B1	for correct region indicated		

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
26 (a)	1080	P1	for complete process eg $\frac{18}{50} \times 3000$	
		A1	cao	
(b)	assumption and explanation	C1	statement eg sample is representative of the population, so if it is not this could change the number of red notebooks Bill should buy	
27	front elevation drawn	B1	for a rectangle of dimensions 2×5 (any orientation)	
		B1	for a rectangle of dimensions 2×5 (any orientation) and additional lines as shown	
28 (a)	100 000 to 200 000	P1	starts process to find the exact or approximate number of seconds in one year, eg $60 \times 60 \times 24 (=86400)$	<p>This mark is for the process of calculation and not necessarily estimation; allow any estimation in this mark as long as the association is clear.</p> <p>Allow any reasonable estimation eg 365 given as 360, 370 or 400; 209 given as 210, 200, 60 given as 50, etc.</p>
		P1	for complete process to find the exact or approximate number of cars made in one year, eg $\frac{60 \times 60 \times 24 \times 365}{209}$ or $\frac{60 \times 60 \times 20 \times 400}{200}$	
		P1	for process of rounding at least two values appropriately, eg 365 and 209	
		A1	answer in range 100 000 to 200 000	
(b)	reason	C1	possible reason linked to underestimate or overestimate, ft from part (a) eg do not know because 24 rounded down and 365 rounded up	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
29	21000	M1	for finding the volume eg $10 \times 10 \times 20 (= 2000)$	
		M1	(dep M1) for multiplying by the density eg “2000” $\times 10.5$	
		A1	cao	
30	$n < 8$	M1	for complete method to find the critical value, eg multiplies out brackets, adds 3 and divides by 3, or shows critical value of 8	Working may be seen in equation or inequality. Accept $n = 8$ for M1
		A1	cao	

