



Mark Scheme (Results)

November 2020

Pearson Edexcel GCSE (9 – 1)

In Mathematics (1MA1)

Foundation (Non-Calculator) Paper 1F

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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 (eg 3.5 – 4.2) then this is inclusive of the end points (eg 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 eg $2 \times 6 (=12)$ 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 eg “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 eg [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	0.309, 0.32, 0.35, 0.4	B1	for 0.309, 0.32, 0.35, 0.4	Accept written in reverse order: 0.4, 0.35, 0.32, 0.309
2	18	B1	cao	18 must be the only number selected for this award
3	5	B1	cao	
4	0.75	B1	cao	
5	700	B1	for 700 Accept 7 hundreds	
6 (a)	cross at $\frac{1}{2}$	B1	Cross (or mark) at $\frac{1}{2}$	Accept any mark near to $\frac{1}{2}$ if the intention is clear; do not accept if any additional marks are shown
(b)	cross at 0	B1	Cross (or mark) at 0	Accept any mark near to 0 if the intention is clear; do not accept if any additional marks are shown

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
7	Correct pictogram drawn	C1	deduces that 1 ellipse represents 12 (eggs) oe	eg. $\frac{1}{2}$ ellipse represents 6 (eggs), $\frac{1}{4}$ ellipse represents 3 (eggs)
		C1	2 ellipses for Tuesday oe	some interpretation of shapes will be needed
		C1	$2\frac{1}{4}$ ellipses for Wednesday oe	
		C1	correctly represented key	
			Alternative (using 1 ellipse to represent a different number of eggs)	
		C2	for a correctly shown key, eg. 1 drawn ellipse represents 4 (eggs) oe and one day in agreement with their key.	eg. a correctly represented key plus, $4\frac{1}{2}$ ellipses for Monday oe
		C1	for a second day in agreement with their key	eg. 6 ellipses for Tuesday oe
		C1	for a third day in agreement with their key.	eg. $6\frac{3}{4}$ ellipses for Wednesday oe
8	(a)	B1	cao	
	(b)	B1	cao	
	(c)	B1	cao	If more than one point marked accept if labelled, otherwise not, unless clear

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
9 (a)	$\frac{3}{7}$	B1	oe	Accept a fraction equivalent to $2\frac{1}{2}$, eg. $1 : \frac{30}{12}$ 2.5 alone gets M1A0
(b)	1 : 2.5	M1 A1	for appropriate method shown eg $30 \div 12 (= 2.5)$ or for a method that involves simplification of 12 : 30 approaching 1 : n , eg. 4 : 10 or 6 : 15 or 2 : 5 or for 2.5 : 1 or $2\frac{1}{2} : 1$ for 1 : 2.5 or $1 : 2\frac{1}{2}$ or for $n = 2.5$	
10	660	P1 P1 P1 A1	for a process to work out the number of large marbles eg $12 \div 4 (=3)$ or the number of small marbles eg $12 - [\text{number of large marbles}]$ or $12 \times (1 - \frac{1}{4}) (=9)$ (dep) for a process to work out the weight of large marbles eg $"3" \times 70 (=210)$ or to work out the weight of small marbles eg $"9" \times 50 (=450)$ for a complete process eg $(12 \div 4) \times 70 + 12 \times (1 - \frac{1}{4}) \times 50$ oe cao	[number of large marbles] could come from an incorrect method for finding $\frac{1}{4}$ of 12
11	Reflection	M1 A1	for a correct reflection of the shape in any line or a correct reflection of at least 3 vertices cao	Allow hand-drawn

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
12 (a)	11	B1	cao	+3 and $\div 2$ could be seen in a flow diagram Evidence could be provided by algebraic statement, numerical statements or by diagrams
(b)	22	M1	Starts to find input using inverse operations, $41 + 3 (= 44)$ or sight of +3 and $\div 2$ or derivation of equation eg $2n - 3 = 41$	
		A1	cao	
13 (a)	025	B1	for angle in the range 23 to 27	Accept without the initial 0, eg. 25
(b)	1.25	M1	for measurement of AB in the range 4.8 to 5.2 (cm) or 48 to 52 (mm)	Could be just seen on the diagram
		M1	for “5” $\times$ 25000 (= 125000) or “50” $\times$ 25000 (= 1250000) or “5” $\div$ 100000 (= 0.00005) or “50” $\div$ 1000000 (= 0.00005) or 25000 $\div$ 100000 (= 0.25) or 25000 $\div$ 1000000 (= 0.025)	125000 or 1250000 seen implies M1M1
		A1	for answer in the range 1.2 to 1.3	For the award of this mark, “5” or “50” can be any value in the range 4 to 6 or 40 to 60

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
14	Completed table	M1	for correctly entering two of 11, 2, 5, 10 ($= 30 - 20$)	4 2 4 10 1 8 11 20 5 10 15 30
		M1	(indep) for using the rule for the top row eg. $([10 \text{ males}] - [2 \text{ male tennis}]) \div 2 (=4)$	Award 2 nd M1 if top row is correct
		A1	for complete correct table	
15	7	P1	for $750 \times 9 (=6750)$ or $1 + 9 (=10)$ or $750 \div 1000 (= 0.75)$	
		P1	(dep) for “6750” + 750 ($=7500$) or for “10” $\times$ 750 ($=7500$) or “0.75” $\times$ “1 + 9” ($= 7.5$)	
		A1	cao	
			Alternative	
		P1	for $100 + 900 (= 1000)$	
		P1	(dep) for $750 \div 100 (= 7.5)$	
		A1	cao	This can be implied by (1 litre of drink $=$) 100 (ml) of squash and 900 (ml) of water)

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
16	(a) Explanation	C1	for explanation Acceptable examples the number of points only goes up to 4 because the median is 2 no-one scored 5 points (implies number of points scored was less than 5) Not acceptable examples she was right since 5 is the middle number she has used the wrong column (insufficient) the median is 3	Explanations must relate to median number of points and not median of the frequency values
	(b) Explanation	C1	for explanation identifying the error in the working Acceptable examples $0 \times 1 = 0$ or 0×1 is not 1 Anything times zero is zero Not acceptable examples the correct answer is 37	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
17	Conclusion (supported)	P1 P1 P1 P1 C1	for process to find 1/10 of 500 eg. $500 \div 10 (= 50)$ or $1 - 0.1 (= 0.9)$ oe (dep) for process to reduce 500 by 1/10 eg. $500 - "50"$ or $500 \times "0.9" (= 450)$ for process to calculate 20% of [Monday sale price] eg. $"450" \times \frac{20}{100} (= 90)$ oe or for use of $100 - 20 (= 80)$ or $1 - 0.2 (= 0.8)$ in relation to [Monday sale price] (dep on P3) for a fully correct process to find the cost of the TV on Tuesday eg. $"450" - "90" (= 360)$ or $"450" \times "0.8" (= 360)$ for conclusion (Yes) supported by correct figures.	eg Yes, the TV will cost 360 Yes, he will have 40 over left
18	4550 to 4800	M1 M1 A1	for rounding at least two figures to 800, 50, 300 or 290 (which could be evidenced through partial calculation) (dep) for a correct calculation using their rounded values eg. sight of 240000 ($= 800 \times 300$) or 232000 ($= 800 \times 290$) or 229100 ($= 790 \times 290$) or $16 (= 800 \div 50)$ or $15.8 (= 790 \div 50)$ or $6 (= 300 \div 50)$ or $5.8 (= 290 \div 50)$ for answer in range 4550 to 4800	Any attempt to find the exact answer gets NO marks even if followed by rounding Various operations possible

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
19 (a)	$x^2 - 4x$	B1	cao	
(b)	$5(3y - 2)$	B1	cao	
(c)	9	M1	for a correct first stage, eg. expanding brackets, $7 \times f - 7 \times 5 (= 28)$ oe or for division of both sides by 7, eg. $\frac{7(f-5)}{7} = \frac{28}{7}$	
		A1	cao	
20	$3n - 2$	B2	for $3n - 2$ oe	Accept a different variable, eg. $3x - 2$
		(B1	for $3n + k$ where $k \neq -2$ or is absent unambiguously shown)	$n = 3n - 2$ gets B1 only $n + 3$ gets NO marks
21	Shown	M1	for conversion to improper fractions eg. $\frac{7}{3}$ or $\frac{15}{4}$	Need not be shown with operators
		M1	(dep) for method to multiply fractions, eg. $\frac{7 \times 15}{3 \times 4} (= \frac{105}{12})$ or $\frac{28 \times 45}{12 \times 12} (= \frac{1260}{144})$ oe	
		C1	for complete working showing each stage as far as $\frac{35}{4}$ or $8\frac{9}{12}$	
22	B C D A	B2 (B1	cao for two or three correct)	
23	A & D	B1	cao	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
26	20 or 24 or 168 Comparison	B1 C2 (C1)	for identification of the range of the girls (20) or the range (24) or the median (168) of the boys for a correct comparison of medians and a correct comparison of ranges supported by correct figures. eg the median height for girls (165) is less than the median height for boys (168) and the range for girls (20) is less than the range for boys (24) At least one comparison must be in context referring to height or quoting cm. for a correct comparison of medians or a correct comparison of ranges that could fit their incorrect figure(s))	Simply quoting values for median, range is insufficient; they must be compared. Context not necessary for C1
27	450	M1 M1 A1	for $18 \div 3 (=6)$ for substitution eg. $75 = \frac{F}{6}$ or $75 \times "6"$ cao	Ignore units
28	0.000 672, 67.2×10^{-4} 6.72×10^5 672×10^4	B2 (B1)	cao for correct conversions to same format, condoning one error. or for 3 numbers in the correct order (ignoring one) or for all 4 numbers listed in reverse order)	Accept correct numbers in any form

Modifications to the mark scheme for Modified Large Print (MLP) papers: 1MA1 1F

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:

Angles: $\pm 5^\circ$

Measurements of length: ± 5 mm

PAPER: 1MA1/1F		
Question	Modification	Mark scheme notes
1	The wording “Write the following numbers...” removed and replaced by “Write the following four numbers...”	Standard mark scheme
2	The wording “Here is a list of numbers” removed and replaced by “Here is a list of five numbers.”	Standard mark scheme
6	Wording added “Look at the diagrams for Question 6 in the Diagram Book. They show two probability scales.” The spinner kept in the question paper and the spike removed. A dot added at the centre of the spinner. Spinner enlarged with the text. Wording added “On the probability scale for Question 6(a), mark...” Wording added “On the probability scale for Question 6(b), mark...” Probability scales kept on the same page in the Diagram Book but enlarged. Numbers moved above the probability scales. The wording “with a cross (x)” removed	Standard mark scheme

PAPER: 1MA1/1F			
Question		Modification	Mark scheme notes
7		Wording added Look at the diagram for Question 7 in the Diagram Book. It shows an incomplete pictogram which...” Diagram enlarged. Key moved above the pictogram. The ovals changed to circles.	Standard mark scheme
8		Wording added “Look at the diagram for Question 8 in the Diagram Book. It shows point A and point B on a coordinate grid.” Diagram enlarged. Open headed arrows. Crosses changed to dots. The point B moved to (1,-1); difficult for the candidate to see as it currently lies on the axis. In part (c) the wording “with a cross (x)” removed.	Standard mark scheme for part (a) and (c), but part (b) is now (1, −1) B1 cao
11		Wording added “Look at the diagram for Question 11 in the Diagram Book. It shows a shaded shape on a grid. A cut out shape may be available if you wish to use it”. Shape provided for all candidates. Diagram enlarged. Shading changed to dotted shading. Add wording “mirror line” to the other side of the line. “You do not need to shade your shape.”	Standard mark scheme
12		Wording added “Look at the diagram for Question 12 in the Diagram Book.” The wording “The diagram shows...” removed and replaced with “It shows...” Diagram enlarged. Open headed arrows.	Standard mark scheme

PAPER: 1MA1/1F		
Question	Modification	Mark scheme notes
13	North lines made 9 cm. A line added between points A and B and made 10cm long to allow them to measure the angle. The angle will be kept the same, but this will change the answer to Question 13(b). Wording added “Look at the diagram for Question 13 in the Diagram Book. It is accurately drawn.” Open headed arrows. Scale to be moved above the diagram. Some enlarged scripts have distance AB measuring 7 cm For these scripts the scheme for 13(b) reads: M1 for measurement of AB in the range 6.5 to 7.5 cm; accept 65 to 75 if identified as mm M1 for “7” $\times$ 25000 (= 175000) or “7” $\div$ 100000 (= 0.00007) or 25000 $\div$ 100000 (= 0.25) “7” can be a figure in mm if previous M1 awarded but appropriate conversions to km then apply For the award of this mark, “7” or “70” can be any value in the range 5.5 to 8.5 or 55 to 85 A1 for answer in the range 1.625 to 1.875 Note: If the length of AB differs from those exemplified, amend the ranges of acceptable values accordingly	<u>Part (a):</u> for angle in the range 20 to 30 Accept without the initial 0 <u>Part (b):</u> M1 for measurement of AB in the range 9.5 to 10.5 cm; accept 95 to 105 if identified as mm M1 for “10” $\times$ 25000 (= 250000) or “10” $\div$ 100000 (= 0.0001) or 25000 $\div$ 100000 (= 0.25) “10” can be a figure in mm if previous M1 awarded but appropriate conversions to km then apply For the award of this mark, “10” or “100” can be any value in the range 8 to 12 or 80 to 120 A1 for answer in the range 2.375 to 2.625

PAPER: 1MA1/1F																			
Question		Modification	Mark scheme notes																
14		Wording added “Look at the table for Question 14 in the Diagram Book.” The wording “Complete the two-way table” removed and replaced by “Complete the two-way table in the Diagram Book.” Wording added “There are ten spaces to fill.” Table enlarged. Braille only: Table labelled (i) to (x). <table border="1"> <tr> <td></td><td>Cricket</td><td>Tennis</td><td>Swimming</td></tr> <tr> <td>Male students</td><td>(iv)</td><td>(ii)</td><td>(v)</td></tr> <tr> <td>Female students</td><td>(vii)</td><td>(viii)</td><td>(i)</td></tr> <tr> <td>Total</td><td>(iii)</td><td>(ix)</td><td>(x)</td></tr> </table> Sticky labels of all the answers provided for braille candidates. They will still have to work out the correct answers for 10 spaces and place them into the correct space.		Cricket	Tennis	Swimming	Male students	(iv)	(ii)	(v)	Female students	(vii)	(viii)	(i)	Total	(iii)	(ix)	(x)	Standard mark scheme
	Cricket	Tennis	Swimming																
Male students	(iv)	(ii)	(v)																
Female students	(vii)	(viii)	(i)																
Total	(iii)	(ix)	(x)																
16		Wording added “Look at the table for Question 16 in the Diagram Book.” Table enlarged. The wording “The table gives information...” removed and replaced by “It gives information...”	Standard mark scheme																
19	(c)	The letter <i>f</i> changed to <i>p</i> .	Standard mark scheme except for the letter changes indicated.																

PAPER: 1MA1/1F		
Question	Modification	Mark scheme notes
22	Wording added “Look at the diagram for Question 22 in the Diagram Book.” The wording “The diagram shows four graphs” removed and replaced by “It shows four graphs labelled graph A, graph B, graph C and graph D.” Diagrams enlarged. Graph lines made thicker. Open headed arrows. Headings moved above the graph.	Standard mark scheme
23	Wording added “Look at the diagram for Question 23 in the Diagram Book.” The wording “The diagram shows four triangles” removed and replaced by “It shows four triangles.” Diagram enlarged. Headings moved above the diagrams. Angles moved outside of the angle arcs and the angle arcs made smaller. Triangles straightened up so a 10 cm side lies horizontally. Braille only: Description added of the triangles.	Standard mark scheme
25	The wording “ADC is a triangle” removed. Diagram enlarged. Wording added “Look at the diagram for Question 25 in the Diagram Book. It shows the triangle ADC.” Angles moved outside of the angles arcs and the angle arcs made smaller.	Standard mark scheme
26	Wording added “Look at the table and the diagram for Question 26 in the Diagram Book.” Wording “This stem and leaf diagram shows...” removed and replaced with “The stem and leaf diagram shows...” The wording “...of a group of Year 9 girls” removed and replaced by “...of a group of girls in Year 9”. The wording “...of a group of 15 Year 9 boys” removed and replaced by “...of a group of 15 boys in Year 9”. Table enlarged and kept on the same page as the stem and leaf diagram. Diagram enlarged and a tracking line added. Key moved above the diagram.	Standard mark scheme

PAPER: 1MA1/1F		
Question	Modification	Mark scheme notes
27	Model provided for all candidates with a base added to represent the horizontal floor. Wording added “Look at the diagram for Question 27 in the Diagram Book. You may be provided with a model.” The wording “The diagram shows a prism...” removed and replaced by “The diagram and the model show a prism...”. Diagram enlarged. Dashed lines to be made thicker and longer. The pressure formula to be kept in the Question Paper and moved to the left of the diagram in the Diagram Book.	Standard mark scheme
28	The wording “Write these numbers in order of size” removed and replaced by “Write these four numbers in order of size.”	Standard mark scheme
29	The letter a changed to w . The letter b changed to x . The letter c changed to y .	Standard mark scheme except for the letter changes indicated.

