



Pearson

Mark Scheme (Results)

Summer 2017

Pearson Edexcel GCSE
In Mathematics A (1MA0)
Foundation (Calculator) Paper 2F

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NOTES ON MARKING PRINCIPLES

- 1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- 2 Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- 3 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.
- 4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- 5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.
- 6 Mark schemes will indicate within the table where QWC is being assessed. The strands are as follows:
 - i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labeling conventions.
 - ii) *select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.
 - iii) *organise information clearly and coherently, using specialist vocabulary when appropriate.*
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

7 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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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 it is clear from the working that the “correct” answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.

If there is no answer on the answer line then check the working for an obvious answer.

Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.

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.

8 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, 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.

9 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 canceling 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 e.g. algebra.

Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

10 Probability

Probability answers must be given as fractions, percentages or decimals. 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 answer is given on the answer line using both incorrect and correct notation, award the marks.

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

11 Linear equations

Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated 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.

12 Parts of questions

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

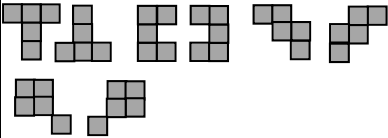
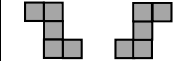
13 Range of answers

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 includes all numbers within the range (e.g 4, 4.1)

Guidance on the use of codes within this mark scheme

M1 – method mark
A1 – accuracy mark
B1 – Working mark
C1 – communication mark
QWC – quality of written communication
oe – or equivalent
cao – correct answer only
ft – follow through
sc – special case
dep – dependent (on a previous mark or conclusion)
indep – independent
isw – ignore subsequent working

Paper: 1MA0/2F				
Question	Working	Answer	Mark	Notes
1 (a)		6500	1	B1 cao
(b)		168	1	B1 cao
(c)		Arrow at 7.2	1	B1 cao
2 (a)		(2, 1)	1	B1 cao
(b)		(0, 5)	1	B1 cao
(c)		(1, 3)	1	B1 cao
(d)		Point	1	B1 for point marked, eg at (4, 5) or (4, 3) or (5, 5) or (7, 6) or (3, 4) or (4, 7)
3		54	3	M1 for $200 \div 3.85$ (= 51.94.. or 51) or $200 \div 3.65$ (= 54.79.. or 54) or $200 \div 3.49$ (= 57.31.. or 57) M1 for working out all of the above, or an answer of 54.79... A1 cao
4 (a)		Mark at $\frac{1}{2}$	1	B1 for mark at $\frac{1}{2}$
(b)		Mark at 1	1	B1 for mark at 1
(c)		Mark at $\frac{1}{4}$	1	B1 for mark at $\frac{1}{4}$

Paper: 1MA0/2F				
Question	Working	Answer	Mark	Notes
5 (a)		4.5	1	B1 for 4.3 to 4.7
(b)		Sector drawn	1	B1 for sector drawn
(c)		Chord	1	B1 cao
6	SP, SL, SR, SF, SC, MP, ML, MR, MF, MC	10 outcomes	2	M1 for at least 4 correct outcomes A1 for all 10 correct outcomes with no incorrect outcomes and no repeats
*7		Liz is wrong (supported)	4	M1 for adding the 4 times eg $2 \times 1 \text{ min} + 2 \times 45\text{secs}$ (= 3 min 30 sec or 210 sec) M1 for $60 \div "3.5"$ (= 17.14..) oe or $200 \div 10$ (= 20) M1 for complete method leading to comparable figures eg. compares no. trips: $60 \div "3.5"$ (=17.14..) and $200 \div 10$ (20) compares no. people: $60 \div "3.5"$ (=17.14..) then $\times 10$ (=171.4..) [200 given] compares tot. time needed: $200 \div 10$ (=20) then $\times "3.5"$ (=70) [60 min given] compares time per trip $200 \div 10$ (=20) then $60 \div "20"$ (= 3) ["3.5" calculated] C1 for statement that Liz is wrong with correct comparable figures (see above) NB: throughout accept rounding of 17.14 to 17 for all marks, and work in seconds if consistent.
8 (a)		Shape completed	1	B1 for a correct shape
(b)		Shape completed	1	B1 for a correct shape

Paper: 1MA0/2F				
Question	Working	Answer	Mark	Notes
9		Yes with correct calculations	3	M1 for $768 \div 56 (= 13.71... \text{ or } 14)$ OR $13 \times 56 (=728)$ or $14 \times 56 (=784)$ M1 for $(768 - 19) \div 56 (= 13.375)$ OR for $[13 \times 56 (=728)$ or $14 \times 56 (=784)]$ and $768 - 19 (= 749)$ A1 for correct conclusion from correct calculations, eg Yes, he still needs 14 buses.
*10		Diagram or chart	4	M1 for a key, or suitable labels, to identify Year 7 and Year 8 M1 for diagram or chart (combined or separate) set up for comparison, correctly showing data for at least 3 days, e.g. dual bar chart, line graph M1 for correct heights, dependent on a linear scale (condone up to 2 errors) C1 for a fully correct diagram or chart to include labels for days of the week and vertical axis correctly scaled and labelled.
11	(a)	0927	1	B1 cao
	(b)	12	2	M1 for method to add 50 minutes to 0935 (= 1025) or method to find the difference between 0935 and 1013 (= 38) A1 cao
12	(a)	12	1	B1 cao
	(b)	45	1	B1 cao
	(c)	16	2	M1 for correct order of inverse operations -12 then $\div 3$ or for forming the equation $3x + 12 = 60$ and showing intention to subtract 12 from both sides or divide each term by 3 as a first step A1 cao
13		4	3	M1 for $10 + 10 + 10 (= 30)$ M1 for $(“30” - 11 - 11) \div 2$ oe A1 cao

Paper: 1MA0/2F				
Question	Working	Answer	Mark	Notes
14	(a)	6	1	B1 cao
	(b)	5.5	2	M1 for listing the numbers in order or an answer of 4 A1 for 5.5
	(c)	7	2	M1 for $9 - 2$ or $2 - 9$ or 2 to 9 A1 cao
15	(a)	trapezium	1	B1 cao
	(b)	8	2	M1 for a strategy to find the area, eg splitting the shape into two triangles or drawing a rectangle around it or using the formula for the area of a trapezium A1 cao
	(c)	Shape reflected	2	B2 for correct reflection drawn (B1 for 3 vertices correct or correct orientation, incorrect position)
	(d)	Enlargement sf 3 drawn	2	B2 correct enlargement drawn (B1 for any two sides correct or a correct enlargement with scale factor other than 3)

Paper: 1MA0/2F				
Question	Working	Answer	Mark	Notes
*16		Yes with comparable values	3	<p>M1 for method to change 14 ft 4 in to in eg $14 \times 12 + 4 (= 172)$ M1 for method to convert an amount of in to cm eg “172” $\times 2.54 (= 436.(88)$ or 437), $4 \times 2.54 (=10.16)$, $(12 \times 14) \times 2.54 (=426.72)$ C1 for Yes with 4.36-4.37 or with 436.(88) or 437 and 440</p> <p>OR</p> <p>M1 for method to convert 4.4 m to cm eg $4.4 \times 100 (= 440)$ M1 for method to convert cm to in eg $440 \div 2.54 (= 173.22\dots)$ C1 for Yes with 14 ft 5 in</p> <p>OR</p> <p>M1 for method to convert 4.4 m to cm eg $4.4 \times 100 (= 440)$ M1 for method to change 14 ft 4 in to in eg $14 \times 12 + 4 (= 172)$ C1 for Yes with 173(.22..) and 172</p>
17		6.29	3	<p>M1 for using $1\text{kg} = 1000\text{g}$, eg $650 \div 1000 (= 0.65)$ M1 complete method, eg “0.65” $\times 9.68$ or $9.68 \div 1000 \times 650$ or for 6.292 A1 for 6.29, accept 6.3(0) SC: B1 for 62.92</p>
18				
(a)		10	1	B1 cao
(b)		7	2	<p>M1 for $1120 - 1100 (= 20)$ or $1157 - 1130 (= 27)$ or $57 - 20 (=37)$ or $57 - 27 (=30)$ A1 cao</p>
(c)		12	1	B1 cao

Paper: 1MA0/2F				
Question	Working	Answer	Mark	Notes
*19		Vans for hire and correct calculations	5	M1 for method to find $\frac{1}{3}$ of 87 (= 29) or $\frac{2}{3}$ of 87 (= 58) oe M1 for complete method to find cost for Best vans, eg $(87 - \text{“29”}) \times 2$ (=116) M1 for method to find the cost of the extra miles, eg $(400 - 250) \times 0.15$ (= 22.50) or $(400 - 250) \times 15$ (= 2250) M1 for complete method to find cost for Vans for hire, eg $44 \times 2 + \text{“22.50”}$ (=110.5(0)) with consistent units C1 for Vans for hire and 116 and 110.5(0)
20	$\frac{2}{5}$, 0.405, 41%, $\frac{3}{7}$, 0.45	Ordered numbers	2	M1 for conversion to decimals or conversion to percentages or correct order with one error or correct order but reversed. A1 for correct order
21	(a)	5, 4, (3), 2, 1, (0)	2	M1 for 1 or 2 or 3 correct entries A1 cao
	(b)	Line drawn	2	M1 plots 5 of their points correctly or a straight line with gradient -1 or a straight line through (0, 4) A1 correct line between $x = -1$ and $x = 4$
22		Question	2	B1 for a question with a time frame for frequency of use B1 for at least 3 correctly labelled response boxes (non-overlapping and exhaustive) [Do not allow inequalities in response boxes]
23		555	3	M1 for recognising that 1295 is 70% eg $70\% = 1295$ M1 for $10\% = 1295 \div 7$ (=185) or $1\% = 1295 \div 70$ (=18.5) or $1295 \times \frac{3}{7}$ oe or $(1295 - 185) \div 2$ or $1295 \times \frac{10}{7}$ oe (=1850) A1 cao

Paper: 1MA0/2F				
Question	Working	Answer	Mark	Notes
24	<p>£: $189 \div 1.39 = 135.97$ $174 \div 1.27 = 137.01$ SF: $115 \times 1.39 = 159.85$ $174 \div 1.27 \times 1.39 = 190.44$ € $115 \times 1.27 = 146.05$ $189 \div 1.39 \times 1.27 = 172.68$</p>	London with correct comparable figures	3	<p>M1 for method to convert one price to another currency, eg $189 \div 1.39$ M1 for a complete method leading to 3 prices in the same currency or to figures that can be used to compare the 3 prices A1 for London and correct comparable figures. (accept rounded or truncated to the nearest unit)</p>
25	(a)	positive	1	B1 cao
	(b)	17 – 21.5	2	<p>M1 for a single line segment with positive gradient that could be used as a line of best fit or a horizontal line from 21 or a point plotted at $(x, 21)$ where x is in the range 17 – 21.5 A1 for answer in range 17 – 21.5</p>
26		23	3	<p>M1 for method to find difference in cost, eg $23 \times 24 - 425 (= 127)$ or for $425 \div (23 \times 24) (= 0.7699\dots)$ or $24 - (425 \div 23) (= 5.52\dots)$ M1 for $\frac{127}{552} \times 100$ oe or $100 - "0.7699" \times 100$ or $\frac{5.52}{24} \times 100$ A1 for answer in range 23 – 23.01</p>
27		22.6	3	<p>M1 for $19.3^2 + 11.7^2$ or $372.49 + 136.89$ or 509.38 M1 for $\sqrt{19.3^2 + 11.7^2}$ or $\sqrt{509.38}$ A1 for answer in range 22.5 to 22.6</p>
28		72	4	<p>M1 for “x” + 24 or “x” – 24 or for “g” and 5“g” M1 for forming an appropriate equation eg $x + 24 = 5(x - 24)$ or for $(5g - g) \div 2 = 24$ or $g = 12$ M1 for correct operations to isolate x terms and non-x terms in an equation of the form $ax + b = cx + d$ or $ax + b = c(x + d)$ or $x = 36$ or for $6 \times "12"$ oe A1 cao</p>

Paper: 1MA0/2F				
Question	Working	Answer	Mark	Notes
*29		No (supported)	5	<p>M1 for $\pi \times 9 \div 2$ (=14.137...) or $\pi \times 5 \div 2$ (=7.85...) or for $\pi \times 9$ (=28.27...) or $\pi \times 5$ (=15.7...)</p> <p>M1 for complete method to work out perimeter: $2 + 2 + (\pi \times 9 \div 2) + (\pi \times 5 \div 2)$ (= 25.99...)</p> <p>M1 (dep M1) for method to find number of rolls required for their perimeter, eg "their total perimeter" $\div 2.4$ eg $25.99 \div 2.4$ (=10.8), "47.98.." $\div 2.4$ (=19.9) or "43.98.." $\div 2.4$ (=18.3)</p> <p>M1 for method to work out cost eg $3 \times 10 + 2 \times 3.99$ (= 37.98), or 11×3.99 (=43.89); 20 \rightarrow 67.98, 19 \rightarrow 63.99 or for method to find how many rolls can be bought for £35 (= 10)</p> <p>C1 for a conclusion supported by fully correct answers eg 37.98 (for comparing with 35) or 10 and 10.8</p> <p>OR</p> <p>M1 for $\pi \times 9 \div 2$ (=14.137...) or $\pi \times 5 \div 2$ (=7.85...) or for $\pi \times 9$ (=28.27...) or $\pi \times 5$ (=15.7...)</p> <p>M1 for complete method to work out perimeter eg $2 + 2 + (\pi \times 9 \div 2) + (\pi \times 5 \div 2)$ (= 25.99...)</p> <p>M1 for a method to find how many rolls can be bought for £35 (=10)</p> <p>M1 for a method to work out the coverage of 10 rolls e.g. 10×2.4 (=24)</p> <p>C1 for a conclusion supported by fully correct answers eg 25.9(...) and 24</p>

Modifications to the mark scheme for Modified Large Print (MLP) papers.

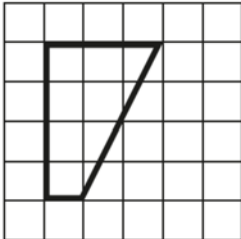
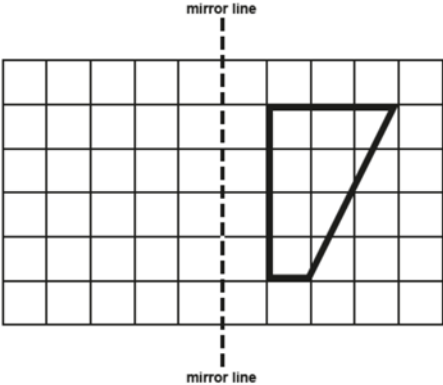
Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

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

Angles: $\pm 5^\circ$

Measurements of length: ± 5 mm

PAPER: 1MA0_2F																					
Question		Modification	Mark scheme notes																		
1	(b)	Diagram enlarged. Arrow head changed to an open headed arrow.	Standard mark scheme																		
1	(c)	Diagram enlarged. Wording 'with an arrow' removed.	Standard mark scheme																		
2		Grid enlarged. Crosses changed to solid dots.	Standard mark scheme																		
2	(d)	Wording 'with a cross (x)' removed.	Standard mark scheme																		
4	(a)	Diagram enlarged. Wording 'below' and 'with a cross (x)' removed.	Standard mark scheme																		
4	(b)	Diagram enlarged. Wording 'below' and 'with a cross (x)' removed.	Standard mark scheme																		
4	(c)	Diagram enlarged. Wording 'below' and 'with a cross (x)' removed.	Standard mark scheme																		
5	(a)	Diagram made 7.5 cm diameter. Dot made bigger.	B1 for 7.1 to 7.9																		
5	(b)	Diagram made 7.5 cm diameter. Dot made bigger. Wording 'Shade' replaced with 'Mark'.	Standard mark scheme																		
5	(c)	Diagram made 7.5 cm diameter. Dot made bigger.	Standard mark scheme																		
8	(a)	Diagram enlarged. Shading changed to dotty shading.	Standard mark scheme																		
8	(b)	Diagram enlarged. Shading changed to dotty shading.	Standard mark scheme																		
10		Table turned to vertical format and left aligned. Wednesday's numbers in the table changed from 17 and 11 to 18 and 10. Thursday's numbers in the table changed from 21 and 13 to 20 and 12. Grid enlarged.	Apply standard mark scheme for: <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td></td> <td>Mon</td> <td>Tue</td> <td>Wed</td> <td>Thu</td> <td>Fri</td> </tr> <tr> <td>Y7</td> <td>16</td> <td>14</td> <td>18</td> <td>20</td> <td>26</td> </tr> <tr> <td>Y8</td> <td>16</td> <td>18</td> <td>10</td> <td>12</td> <td>20</td> </tr> </table>		Mon	Tue	Wed	Thu	Fri	Y7	16	14	18	20	26	Y8	16	18	10	12	20
	Mon	Tue	Wed	Thu	Fri																
Y7	16	14	18	20	26																
Y8	16	18	10	12	20																

Question	Modification	Mark scheme notes
11	First column of timetable has been removed from the table. Horizontal lines have been added to the information.	Standard mark scheme
13	Diagrams enlarged. 11 cm measurement on the rectangle moved above the rectangle.	Standard mark scheme
15	(a),(b) Diagram enlarged. Shape changed. Wording ‘centimetre’ removed. Wording added ‘Each square on the grid represents a one centimetre square’. 	Standard mark scheme for this shape; answers remain the same.
15	(c) Diagram enlarged. Shape changed. Mirror line added to the top of the line as well. 	Standard mark scheme applied to this shape.
15	(d) Question reversed. Shape changed. The quadrilateral which is labelled ‘Shape P’ has been enlarged by a scale factor 3 and labelled ‘Shape Q’. Question wording changed to ‘It shows Shape P and Shape Q given on a grid. Describe the single transformation that maps Shape P onto Shape Q.’ 3 answer lines have been provided. 3 rows have been cut off the side and 2 rows have been removed from the top of the grid and one from the bottom.	B1 for enlargement B1 for scale factor 3

PAPER: 1MA0_2F

Question		Modification	Mark scheme notes
18		Diagram enlarged. Axes labels moved to the left of the horizontal axis and above the vertical axis. Right axis has been labelled. Graph line moved so it finishes at 11.55.	Amended mark scheme: M1 for 11 20 – 11 00 (= 20) or 11 55 – 11 30 (= 25) or or 55 – 20 – “10” A1 for 5
20		Wording ‘five’ added.	Standard mark scheme
21	(a)	Table has been turned to vertical format and left aligned. Wording added ‘There are four spaces to fill.’ Braille only: will label the spaces to fill (i) to (iv).	Standard mark scheme
21	(b)	Diagram enlarged.	Standard mark scheme
25		Diagram enlarged. Axes labels moved to the left of the horizontal axis and above the vertical axis. Right axis has been labelled. Crosses have been changed to solid dots. In (b) the number 21 cm has been changed to 20 cm.	Standard mark scheme but in (b) the range used should be 20 - 24
27		Diagram enlarged. Braille only: will add information about the diagram into the question wording.	Standard mark scheme
29		Diagram enlarged. Arrows removed from 2 m. Open headed arrows for 5 m. Dot has been made bigger. Information removed from the box and written as a sentence in the question wording.	Standard mark scheme

