Pearson

Mark Scheme (Results)

Summer 2024

Pearson Edexcel GCSE
In Mathematics (1MA1)
Foundation (Non-Calculator) Paper 1F

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
1	18 000	B1	cao	
2	30	B1	cao	
3	reflex	B1	cao	
4	0.03, 0.1, 0.16, 0.2, 0.21	B1	for 0.03, 0.1, 0.16, 0.2, 0.21	accept 0.21, 0.2, 0.16, 0.1, 0.03
5	8	B1		Accept ± 8 or -8
6	1.5(0)	P1 P1 P1 A1	for 4×1.30 (= 5.2(0)) **or** $10 - 1.80$ (= 8.2(0)) for $10 - 1.80 -$ "5.20" (= 3) oe for "3" ÷ 2 cao SCB2 for answer (£)2.4(0)	Working could be in pence Condone answer £1.5(0)p

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
7	Bar chart			Accept bar chart, vertical line graph, dual/multiple bar chart, composite bar chart, frequency polygon for all marks. Accept unambiguous abbreviations for labels eg L, P
		M1	for a key, or suitable labels, to identify Lena and Pavel	
		M1	for 3 or 4 correct labels for days **or** a linear scale present	Allow linear scale not starting at 0 Scale must be marked on grid lines.
		M1	for a (bar) chart correctly showing data for at least 1 person or 2 days	Bars / lines / points must be unambiguously correct for their scale (scale must be present). Allow for correctly showing total hours worked for all four days on chart (13, 15, 13, 12)
		C1	for a fully correct (bar) chart with labels for days of the week, vertical axis correctly scaled and labelled and key/labels for Lena and Pavel	Horizontal axis does not need an overall 'day' label Condone frequency for number of hours. For C mark scale must start at 0 and be linear for the range of values plotted. Condone bars of unequal width Condone no gaps or inconsistent gaps

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
8 (i)	50	M1	for 360 – 220 – 90 oe	
		A1	cao	
(ii)	Reason	C1	for angles at a point add up to 360 Acceptable examples • A full turn adds up to 360 • Full rotation is 360 Not acceptable examples • Angles in a circle add to 360 • A whole circle adds up to 360 • It must add up to 360 degrees • $220 + 90 = 310, 360 - 310$ • Angles at a point add up to 180 • Angles on a straight line add to 180	Underlined words need to be shown Note: If line *AO* or *OC* or *BO* is extended and used to find *x* in (i) then allow C1 for angles on a straight line add to 180

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
9 (a)	16	B1	cao	
(b)	19	M1	starts method to find input using inverse operations eg 28 + 10 (=38) **or** sight of +10 and ÷2	+10 and ÷2 could be seen in a flow diagram Working may be next to number machine.
		A1	cao	
(c)	Shown	M1	for carrying out at least one trial **or** for forming a suitable equation, eg $2x - 10 = x$ **or** for identifying 10	Trial can be for any value, must be correctly evaluated. Accept correct inverse function trial, correctly evaluated. If working seen on the number machine provided in the question allow for a trial other than input 13 or output 28.
		C1	for showing that an input of 10 gives an output of 10	Allow $10 \times 2 = 20 - 10 = 10$ for M1C1
10	2 : 3	M1	for 24 : 36 oe **or** 3 : 2 **or** 1.5 : 1	
		A1	2 : 3 or 1 : 1.5	Do not ISW from 2:3
11 (a)	3	B1	cao	
(b)	32	B1	cao	
(c)	30 ÷ (3 + 2) – 4	B1	for brackets correctly placed	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12	6	P1	for process to find perimeter of triangle eg 14 + 30 + 36 (= 80)	
		P1	for "80" ÷ 4 (= 20)	$36 \div 4 + 14 \div 4 + 30 \div 4 (= 20)$ scores P1P1
		P1	for a complete process eg ("20" – 4 – 4) ÷ 2 **or** "20" ÷ 2 – 4	
		A1	cao	
13 (a)	1	B1	Allow 100%	Allow $\frac{k}{k}$ Do not accept 100, do not accept certain.
(b)	$\frac{2}{3}$	P1	for start of process to write down proportion of each coin, writes down a correct ratio, eg 1p : 2p = 2 : 1 oe **or** a process to work out number of 1p coins **and** 2p coins, eg 40 ÷ 2 (= 20) **and** (40 ÷ 2) ÷ 2 (= 10) **or** assigns numbers in correct proportion, eg 6 1p coins **and** 3 2p coins **or** finding the probability of a 2p coin $\left(=\frac{1}{3}\right)$	
		A1	for $\frac{2}{3}$ oe	Accept any equivalent fraction, decimal form, 0.66(6…) or 0.67 or percentage form, 66(.6…)% or 67%

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
14	14742	M1	for complete correct method with relative place value correct eg two lines of 1st method, internal numbers of grids, or complete structure shown of partitioning methods	13650 1092 14742 **2 7 3** 1 | 10 | 35 | 15 | **5** 4 | 08 | 28 | 12 | **4** 7 4 2 | | 200 | 70 | 3 | | 50 | 10000 | 3500 | 150 | | 4 | 800 | 280 | 12 | 10000 + 3500 + 150 + 800 + 280 + 12 = 14742
		M1	(dep on M1) for addition of all the appropriate elements of the calculation	
		A1	cao	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15 (a)	64	B1	cao	
(b)	36	M1	for identifying 81 and 45 as the key numbers, eg 81 – 45 or 45 – 81 or 45 to 81	It is insufficient to identify these on the diagram (eg as 1, 5)
		A1	cao	Answer of –36 gets M1A0
(c)	comparison	C1	for a correct comparison of medians that could ft their incorrect median in (a) **Acceptable examples** The adults were faster because they have the smaller median The adults were [11] minutes faster (on average) The adults were faster The adults took less time The children were slower The children took more time Children took [11] minutes more (on average) Children had a larger median than the adults. **Not acceptable examples** The children were faster The adults median was 64, the children's median was 75 11 minutes difference The children had more time to run than the adults	Statement must be entirely true and not contradictory Figures not required in comparison, but if seen must be correct. Where [11] is the difference between 75 and their (a). If median in (a) is greater than 75 then converse statements would be correct ft.

<table>
<tr><th colspan="4">Paper: 1MA1/1F</th></tr>
<tr><th>Question</th><th>Answer</th><th>Mark</th><th>Mark scheme</th><th>Additional guidance</th></tr>
<tr><td>16</td><td>Pack of 8
(supported)</td><td>P1</td><td>for a process (for at least 2 packs) of division of price by quantity
eg at least 2 of 180 ÷ 4 (= 45) or 320 ÷ 8 (= 40) or 600 ÷ 12 (= 50)

OR any other process that could lead to a comparison of 2 packs
eg 180 × 2 (= 360)
or 320 ÷ 8 (= 40) and “40” × 12 (= 480)</td><td>Calculations could be in pounds or in pence

<table>
<tr><td></td><td>4 pack</td><td>8 pack</td><td>12 pack</td></tr>
<tr><td>1</td><td>0.45</td><td>0.40</td><td>0.50</td></tr>
<tr><td>2</td><td>0.90</td><td>0.80</td><td>1.00</td></tr>
<tr><td>4</td><td>1.80</td><td>1.60</td><td>2.00</td></tr>
<tr><td>8</td><td>3.60</td><td>3.20</td><td>4.00</td></tr>
<tr><td>12</td><td>5.40</td><td>4.80</td><td>6.00</td></tr>
<tr><td>16</td><td>7.20</td><td>6.40</td><td>8.00</td></tr>
<tr><td>24</td><td>10.80</td><td>9.60</td><td>12.00</td></tr>
</table></td></tr>
<tr><td></td><td></td><td>P1</td><td>for a complete process to give values that can be used for comparison of all 3 packs
eg 180 ÷ 4 (= 45) and 320 ÷ 8 (= 40) and 600 ÷ 12 (= 50)
OR
3.20 ÷ 8 (= 0.40) and “0.40” × 4 (= 1.60) and “0.40” × 12 (= 4.80)
OR
1.80 × 6 (= 10.80) and 3.20 × 3 (= 9.60) and 6.00 × 2 (= 12.00)</td><td>Condone incorrect units.

Pairwise comparison are possible, but check to see that this allows for a decision to be made. Check process.
Assuming correct figures found:
<table>
<tr><td colspan="2">Comparisons</td><td>Conclusion possible</td></tr>
<tr><td>4 vs 8</td><td>8 vs 12</td><td>Yes</td></tr>
<tr><td>4 vs 8</td><td>4 vs 12</td><td>Yes</td></tr>
<tr><td>4 vs 12</td><td>8 vs 12</td><td>No</td></tr>
</table></td></tr>
<tr><td></td><td></td><td>A1</td><td>for ‘pack of 8’ and correct values that can be used to compare all 3 packs</td><td>Correct answer with no supportive working scores 0 marks.

Do not allow A mark where inconsistent units would prevent comparison e.g. 0.40p and 45p</td></tr>
</table>

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
17	3.5	M1 M1 A1	for correct expansion of brackets, ie $8x - 10$ **or** dividing throughout by 2 as a first step to solve equation, eg $4x - 5 = 9$ for isolating terms in x, eg $8x = 18 + 10$ **or** $4x = 9 + 5$ for 3.5 **or** $3\frac{1}{2}$ oe **or** $\frac{7}{2}$ oe	For M marks step must be carried out not just intention shown. For example, if you see $2(4x - 5) = 18$ $\div 2$ $\div 2$ Award M1 for: $4x - 5 = k$ with $k \neq 18, 36$ ft their equation of the form $ax \pm b = c$ For example, if you see $8x - 10 = 18$ $+10$ $+10$ Award M1 for: $8x = k$ with $k \neq 8, 18$
18	1	B1	cao	
19	Translation $\begin{pmatrix} 5 \\ -4 \end{pmatrix}$	B1 B1	for translation for $\begin{pmatrix} 5 \\ -4 \end{pmatrix}$ NB: award no marks if more than one transformation is given	 Do not accept 5 across, 4 down or 5 right, 4 down. Condone omission of brackets around vector. Do not accept vector given as coordinate.
20	$4n - 3$	B2 (B1	for $4n - 3$ oe for $4n + k$ where $k \neq -3$ or is absent unambiguously shown)	Accept a different variable eg $4x - 3$ Accept $u_n = 4n - 3$, $T = 4n - 3$ etc $n = 4n - 3$ or $4n^{th} - 3$ gets B1 only

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
21 (a)	$2\frac{2}{15}$	M1	for a method to subtract using a common denominator with at least one fraction correct (suitable common denominator for original fractions with at least one correct numerator) eg $\frac{57}{15}-\frac{25}{15}$ **or** $(3)\frac{12}{15}-(1)\frac{10}{15}$	Use of decimals gets no credit unless it leads to a correct fraction
		A1	for $2\frac{2}{15}$ oe eg $\frac{32}{15}$	ISW incorrect conversion from improper fraction to mixed number or incorrect simplification of improper fraction.
(b)	Mistake identified	C1	for explaining that Kevin did not convert to the correct mixed number **Acceptable examples** In his answer $\frac{9}{24}$ should have been $\frac{11}{24}$ The 9 should be 11 He has not got the numerator right in his final answer He simplified into the mixed number incorrectly He has not put the remainder as the numerator $1\frac{9}{24}$ would give you $\frac{33}{24}$ rather than $\frac{35}{24}$ $\frac{35}{24}=1\frac{11}{24}$ **Not acceptable examples** He should have used a common denominator He has not simplified his answer He should have done keep, flip, change He converted the fraction wrongly The answer should be $1\frac{10}{24}$	Figures may be seen in the question space.

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
22 (a)	Yes (supported)	P1	for a process to find the area of one shape, eg 10×8 (= 80) **or** 10×5 (= 50) **or** 8×6 (= 48) **or** $(10 - 6) \times 5$ (= 20) **or** $(10 - 6) \times (8 - 5)$ (= 12) **or** $6 \times (8 - 5)$ (= 18) **or** 5×6 (= 30)	Do not award this mark if they go on to multiply by a third length
		P1	for a complete process to find the total area, eg "80" – "12" (= 68) or "50" + "18" (= 68) or "48" + "20" (= 68)	
		P1	for a complete process to find the area covered by 3 tins eg $3 \times 2.5 \times 10$ (= 75) **or** for a complete process to find the number of litres needed eg "68" ÷ 10 (= 6.8) or [area] ÷ 10 **or** for a complete process to find the number of tins needed eg "68" ÷ 10 ÷ 2.5 (= 2.72) or [area] ÷ 10 ÷ 2.5	[area] is what they believe to be the area
		A1	for 'Yes' supported by correct figures eg 68 (m^2) **and** 75 (m^2) **or** 6.8 (litres) **and** 7.5 (litres) **or** 68 (m^2) **and** 2.72 (tins needed)	Ignore incorrect amount of paint left over if correct figures seen.
(b)	No effect (supported)	C1	ft from (a) for "has no effect" with reason **Acceptable examples** No effect, she will need less paint It won't change, she will still have enough No, she will have more paint left over No, as this will cover 82.5m^2 **Not acceptable examples** Petra will need less paint She will have more paint left over She won't have enough paint She will need more paint	Must have a decision in (a). Must include a decision eg yes / no / no effect. If figures included in the statement they must be correct for their [area] in (a).

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
23 (a)	10, 11, 13, 14, 16, 17	B1	cao	
(b)	$\frac{5}{9}$	M1	for identification of 10, 12, 14, 15, 18 **or** for $\frac{a}{9}$ where $1 \leq a \leq 8$, a an integer, or $\frac{5}{b}$ where $b > 5$, b an integer **or** for incorrect form, eg 5 : 9	
		A1	oe	Accept any equivalent fraction, decimal form, 0.55(5...) or 0.56 or percentage form, 55(.5...)% or 56%

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
24 (a)	Estimated value	P1	for using a value rounded to 1sf in a calculation eg 500 ÷ 10 **or** 500 × 0.8 **or** 510 × 0.8 **or** 513 × 0.8 **or** 500 × 0.81	Their rounded value must be used in a calculation Rounding may occur after a correct process, eg 513 ÷ 10 = 51.3 ≈ 50 and 50 × 0.81 513 ÷ 10 = 51.3 ≈ 51 and 51 × 0.8 scores P1P1 Accept 0.81 rounded to 0.80 for this mark Condone 0.81 rounded to 1 for this mark.
		P1	for a full process to find the total amount eg 500 ÷ 10 × 0.8 (= 40) **or** 510 ÷ 10 × 0.8 (= 40.8) **or** 500 ÷ 10 × 0.81 (= 40.5) or [distance] ÷ 10 × [amount] oe	Where [distance] is their rounded 513 or 513 and [amount] is their rounded 0.81 or 0.81 Accept 513 ÷ 10 × 0.81 for this mark.
		A1	for a correct answer following through their correct rounded value(s)	Do not award this mark if 0.81 is rounded to 1
(b)	underestimate with reason	C1	ft from (a) eg underestimate as numbers rounded down	Must relate to estimation and not rounding of their final answer and they must have a final answer to part (a)

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
25 (a)	$y = \frac{3}{2}x + 3$	M1	for a correct method to find the gradient of the line, eg $\frac{6-3}{2-0}$ $(=\frac{3}{2})$	
			or identifies 3 as the intercept in words or in a partial equation	Just circling 3 is insufficient
			or for $y = [\frac{3}{2}]x + c$	$[\frac{3}{2}]$ must be identifiable as their gradient c must be seen either as a letter or a number
			or for $y - b = [\frac{3}{2}](x - a)$ where (a, b) is a correct coordinate	
		M1	for $y = \frac{3}{2}x$ (+ c) oe **or** for $y =$ "$\frac{3}{2}$"$x + 3$, $m \neq 0$ **or** (**L** =) $\frac{3}{2}x + 3$	Award of this mark implies the first M1
			or $y - y_1 = \frac{3}{2}(x - x_1)$ **or** $y - b =$ "$\frac{3}{2}$"$(x - a)$ where (a, b) is a correct coordinate	
		A1	oe	Any correct equation gets 3 marks
(b)	Equation	B1	for $y = 5x + c$, $c \neq 0$ oe	May be in any equivalent form

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
26	7.5	P1	for process to find the number of empty jars eg $3 \div 8 \times 400$ oe (= 150)	
		P1	for start of process to deal with ratios eg 3 : 4 and 4 : 8 **or** 3 : 4 : 8 oe	
		P1	for process to find the number of empty small jars eg $\frac{3}{3+4+8}\times$ "150" oe (= 30) **or** 30 : 40 : 80	
		P1	for process to find percentage, eg $\frac{"30"}{400}\times 100$ oe or $\frac{"7.5"}{100}$	
		A1	for 7.5 or $7\frac{1}{2}$ oe	
			OR	
		P1	for start of process to deal with ratios eg 3 : 4 and 4 : 8 **or** 3 : 4 : 8 oe	
		P1	for process to find the proportion of the empty jars that are small eg $\frac{3}{3+4+8}\ (=\frac{1}{5})$	
		P1	for process to find the proportion of Kasim's jars that are empty small jars eg $\frac{3}{8}\times "\frac{1}{5}" (=\frac{3}{40})$	
		P1	for process to find percentage, eg $"\frac{3}{40}" \times 100$ oe or $\frac{"7.5"}{100}$	
		A1	for 7.5 or $7\frac{1}{2}$ oe	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
27	400	M1 A1	for 280 ÷ 0.7 oe cao	
28	$x \leq -4$	M1	for a correct first step working with an equation or inequality eg $x + 11 - 11 \leq 5 - \frac{1}{2}x - 11$ **or** $x + 11 + \frac{1}{2}x \leq 5 - \frac{1}{2}x + \frac{1}{2}x$ **or** $2 \times x + 2 \times 11 \leq 2 \times 5 - 2 \times \frac{1}{2}x$	Can work with an equation or incorrect inequality symbol for both M marks Allow for subtracting 5 from both sides or subtracting *x* from both sides. For M marks step must be carried out not just intention shown. For example, if you see $x + 11 \quad \leq \quad 5 - \frac{1}{2}x$ $-11 \qquad\qquad -11$ Award M1 for: $x \leq k - \frac{1}{2}x$ with $k \neq 5$, $k \neq 16$ or indicating $+\frac{1}{2}x$ reaching $kx + 11 \quad \leq \quad 5$ with $k \neq \frac{1}{2}, k \neq 1$ or indicating multiplying by 2 obtaining an equation or inequality with three of four terms correct and no term unchanged.
		M1 A1	for a full method to solve the inequality **or** for a critical value of – 4 for $x \leq -4$ oe as final answer	Award 2 marks for answer of *x*? – 4 where ? is an = or any incorrect inequality symbol, or for answer shown as just – 4

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. Notes apply to both MLP papers and Braille papers unless otherwise stated.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:
Angles: ±5º
Measurements of length: ±5 mm

PAPER: 1MA1_1F			
Question		**Modification**	**Mark scheme notes**
3	(a)	Diagram enlarged. Wording added 'Look at the diagram for Question 3 in the separate Diagram Booklet. The diagram is NOT accurately drawn. The diagram shows an angle labelled y.'	Standard mark scheme
4		Word 'five' added 'Write these five numbers in order of size.'	Standard mark scheme
7		Word 'below' added 'The table below shows the number…' The table is turned vertically in the Question Paper. Wording added 'Look at the diagram for Question 7 in the separate Diagram Booklet. The diagram is a grid.' Sentence changed 'On the grid, create a suitable diagram or chart for this information.' For Braille: sentence added 'A spare tactile diagram, sticky labels and bumpons are provided for this question.'	Standard mark scheme
8		Diagram enlarged. Wording added 'Look at the diagram for Question 8 in the separate Diagram Booklet. The diagram is NOT accurately drawn.' The diagram shows three straight lines OA, OB and OC. Angle AOC = 220° Angle AOB = x Angle BOC = 90°	Standard mark scheme
9		Sentence changed 'Look at the number machine below.'	Standard mark scheme
12		Diagram enlarged. Letters added to corners of triangle (ABC) and rectangle (PQRS). Wording added 'Look at the diagram for Question 12 in the separate Diagram Booklet. The diagram is NOT accurately drawn.' The diagram shows a triangle labelled ABC and a rectangle labelled PQRS. In the triangle ABC: AB = 36 cm AC = 30 cm BC = 14 cm In the rectangle PQRS: PQ shows the length of the rectangle. PS = 4 cm'	Standard mark scheme

PAPER: 1MA1_1F			
Question		**Modification**	**Mark scheme notes**
15		Wording added 'Look at the diagram for Question 15 in the separate Diagram Booklet. It shows a stem and leaf diagram.' Sentence changed: 'She showed her results in the stem and leaf diagram.'	Standard mark scheme
16		Diagram of batteries removed. Information put in boxes 4 batteries 8 batteries 12 Batteries £1.80 £3.20 £6.00	Standard mark scheme
19		Wording added: Look at the diagram for Question 19 in the separate Diagram Booklet. The diagram shows Triangle A and Triangle B on a coordinate grid. Describe fully the SINGLE transformation that maps Triangle A onto Triangle B. You may be given a cut out triangle for this question.' Labels on triangles changed to 'Triangle A' and 'Triangle B'	Standard mark scheme
22		Diagram enlarged. Letters added to diagram (ABCDEF). Wording added: 'Look at the diagram for Question 22 in the separate Diagram Booklet. The diagram is NOT accurately drawn. The diagram shows a plan of a floor labelled ABCDEF. In the diagram: AB = 10 m BC = 5 m EF = 6 m FA = 8 m	Standard mark scheme
23		Diagram enlarged. Labels changed to 'Set P' and 'Set Q'. Wording added 'Look at the diagram for Question 23 in the separate Diagram Booklet. The diagram shows a Venn diagram with Set P and Set Q.'	Standard mark scheme
25		Diagram enlarged. Wording added 'Look at the diagram for Question 25 in the separate Diagram Booklet. The diagram shows a straight line L drawn on a coordinate grid.'	Standard mark scheme