Pearson

Mark Scheme (Results)

Summer 2023

Pearson Edexcel GCSE
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 × 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" × 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] × 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	0.38	B1	cao	
2	$\frac{3}{10}$	B1	or any equivalent fraction	3 : 10 or 0.3 or 30% get no marks
3	0.5	B1	cao	
4	−4	B1	cao	
5	5	B1	cao	
6	Explanation	C1	for a correct explanation. **Acceptable examples** he has labelled the radius incorrectly the diameter (label) should read radius the diameter goes from one side (of the circle) to the other the radius is labelled diameter **Not acceptable examples** a label is wrong there is nothing wrong with his labels the radius is wrong the centre is wrong, it should be the radius he has incorrectly labelled the diameter	Do not accept a statement that is ambiguous, where one aspect contradicts another, eg. "the radius goes from the centre whereas the diameter goes all round the circle"
7	Three correct factors	B2 (B1	for at least **three** from 1, 2, 4, 5, 10, 20 for **two** correct factors from 1, 2, 4, 5, 10, 20 and no more than one incorrect factor)	No incorrect factors No repeats (within the chosen 3) Ignore extra correct factors. Accept factor pairs, eg. 1 × 20 as two factors

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
8 (a)	310	M1	for 360 – 50	
		A1	cao	
(b)	Explanation	C1	for explanation relating to the type of angle 50° is, or an explanation why it is not an obtuse angle **Acceptable examples** It's (50°) an acute angle an angle below 90 is acute because it (50°) is less than 90 It (50°) is too small to be an obtuse angle an obtuse angle is greater than 90 (but less than 180) an obtuse angle is greater than 50 **Not acceptable examples** because 50° is not an obtuse angle an angle of 50° is a reflex angle an obtuse angle **is** all angles greater than 90 an obtuse angle is an angle greater than 120 an obtuse angle is 90 or more	Do not accept contradictions in the answer, eg. "an obtuse angle is greater than 180 so 50 is an acute angle" **or** "an obtuse angle is greater than 90 and less than 270"

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
9 (a)	(5, 2)	B1	cao	
(b)	(4, −2) marked	B1	for the point (4, −2) unambiguously marked on the grid	Allow without label, provided unambiguous
(c)	(1, 3)	B1	cao	
(d)	$y = -4$ shown	B1	for correct single line unambiguously marked	Need not be labelled if clear. Accept a single line drawn freehand of any length. Accept a dotted (or dashed) line
10	Yes (supported)	P1	for an initial process, eg 6 × 2 (=12) **or** 80 ÷ 2 (=40 = 0.40) oe **or** 6 × 0.8 (= 4.80) oe **or** 6 ÷ 2 (= 3)	May work in pounds or pence
		P1	for a process using the special offer eg 6 × "40" (= 240 or 2.40) oe **or** "4.80" ÷ 2 (= 2.40) oe **or** 2 + "0.40" (= 2.40) oe **or** "3" × 0.8 (= 2.40)	Allow use of inconsistent units for the first 2 marks
		P1	for a complete process to find figures to compare, eg 6 × 2 + 6 × "0.40" (= 14.40) oe **or** 15 – "12" – "2.40" (= 0.60 or 60p)	
		C1	for Yes with correct comparable figures, eg Yes **and** (£)14.4(0) **or** Yes **and** (£)0.6(0) or 60p change	Award 0 marks for a correct answer with no supportive working. Answer of 'No' gets C0 irrespective of working, correct or not. Ignore incorrect value for change, if (£) 14.4(0) seen

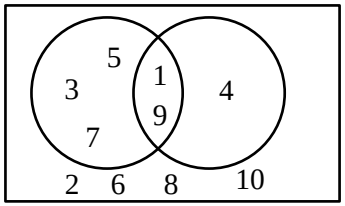
Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
11 (a)	248	P1	for 700 – 452	
		A1	cao	
(b)	11000	P1	for evidence of rounding values to 1 significant figure, eg 300 **or** 400 **or** 10 or 9 **or** 20	
		P1	(dep on P1) for beginning a process to work with ticket sales, eg. 300 × 10 (= 3000) or 290 × 10 (= 2900) or 297 × 10 (= 2970) or 300 × 9 (= 2700) or 300 × 9.5 (= 2850) or 290 × 9 (= 2610) or 297 × 9 (= 2673) **OR** 400 × 20 (= 8000) or 390 × 20 (= 7800) or 399 × 20 (= 7980) or 400 × 19.5 (= 7800) or 400 × 19 (= 7600)	Note: **not** 290 × 9.5 (= 2755) or 297 × 9.5 (= 2821.5) Note: **not** 390 × 19 (= 7410) or 390 × 19.5 (= 7605) or 399 × 19 (= 7581) or 399 × 19.5 (= 7780.5)
		A1	for using **correct** values giving an answer in the range 10 200 to 11 000 from calculations using their rounded values	Award 0 marks for an answer in the range with no supportive working
(c)	Overestimate with reason	C1	(dep on P2 in (b)) for overestimate and reason, eg (ft from (b)) true total amount of money paid will be less as all values were rounded up	Must relate to estimation and not to rounding of their final answer and they must have a final answer to part (b)
12	7	M1	for (13 + 4 + 5 + 9 + 3 + 8) ÷ 6 or "42" ÷ 6	Condone missing brackets for M1
		A1	cao	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13 (a)	$5a$	B1	cao	
(b)	$19 - 2b + 5c$	M1	for $-2b$ or $5c$	
		A1	for $19 - 2b + 5c$	Accept the correct 3 terms in any order The A mark is lost for any incorrect subsequent working, eg. $17b + 5c$
(c)	$2(4d - 3)$	B1	for $2(4d - 3)$ oe	Accept $(4d - 3)2$ or $2\times(4d - 3)$ or $(4d - 3)\times 2$ Condone missing final bracket, eg $2(4d - 3$
14 (a)	27	B1	cao	
(b)	$\frac{2}{7}$	B1	or any equivalent fraction	
(c)	No (supported)	P1	for method to find the number of children on Friday eg 0.7×500 oe (= 350)	
		P1	for method to find the number of children on Saturday eg $720 \div 8 \times 5$ oe (= 450)	
		C1	for No with correct figures, eg No **and** 350 **and** 450 **or** No **and** 100 more on Saturday	Award 0 marks for a correct answer with no supportive working.

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15	$\frac{5}{14}$	M1	for method to multiply fractions, eg $\frac{6 \times 5}{7 \times 12}$ **or** to simplify, eg $\frac{1}{7} \times \frac{5}{2}$ **OR** for a fractional answer equivalent to $\frac{5}{14}$	$\frac{30}{84}, \frac{15}{42}, \frac{10}{28}$
		A1	cao	
16	750	M1	for 250 × (60 ÷ 20) oe or 150 × (60 ÷ 20) oe or 100 × (60 ÷ 20) oe	
		A1	cao	
17	27.5	P1	for process to find number of yellow and green counters, eg 200 – 38 – 52 (= 110) **OR** for process to express red and blue counters as a percentage of 200, eg $\frac{38 + 52}{200}$ × 100 oe (= 45)	
		P1	for process to find number of yellow counters and/or the number of green counters eg "110" ÷ 2 (= 55) **OR** for process to express the sum of the yellow and green counters as a percentage of 200, eg $\frac{"110"}{200}$ × 100 (= 55) **or** 100 – "45" (= 55)	
		P1	for a complete process to express the number of yellow counters as a percentage, eg $\frac{"55"}{200}$ × 100 **or** "55" ÷ 2	
		A1	for 27.5 oe	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
18	$T = 5b + 28c$	M1	for $5b$ **or** $28c$ **or** T = a linear expression in b and/or c	Allow $5 \times b$ and $28 \times c$ throughout
		M1	for $5b + 28c$ **or** partially correct formula, eg $T = 5b$ (+ kc) oe **or** $T = 28c$ (+ kb) oe	
		A1	for $T = 5b + 28c$ oe	
19	$8n - 13$	B2	for $8n - 13$ oe	Accept a different variable eg $8x - 13$
		(B1	for $8n + k$ where $k \neq -13$ or is absent unambiguously shown)	$n = 8n - 13$ or $8n^{th}$ - 13 gets B1 only
20	56.4	M1	for a start to a method, eg $846 \div 15$ or $8.46 \div 0.15$ or $8.46 \div 3 \times 20$ or $282 \div 5$ that leads to 5 as the first digit. **or** for a complete method with no more than one arithmetic error.	A start to a repeated subtraction method or a build-up method is acceptable if a correct first digit of 5 is found
		A1	for digits 564 identified	
		A1	(ft) dep on M1 for correct placement of the decimal point into their final answer	An answer of $56\frac{2}{5}$ gets 3 marks

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
21	$4\frac{7}{8}$	M2	for a complete method, eg $7 - 2 + \frac{3}{8} - \frac{4}{8}$ condoning error with one numerator **or** for $\frac{59}{8} - \frac{5}{2} = \frac{59}{8} - \frac{20}{8}$ $(=\frac{39}{8})$ with no more than one error **OR** for an answer of 4.875	
		(M1	for finding two fractions with a correct common denominator, with at least one correct corresponding numerator, eg $\frac{3}{8}, \frac{4}{8}$ **or** for converting both to improper fractions, eg $\frac{59}{8}, \frac{5}{2}$ **OR** for 7.375 – 2.5)	At least one improper fraction must be correct Both decimals must be correct
		A1	for $4\frac{7}{8}$ oe eg $4\frac{14}{16}$	Any equivalents must be a mixed number
22	125	P1	for process to find area of one face, eg 150 ÷ 6 (= 25) **or** $6x^2 = 150$	where x is the length of one side
		P1	for process to find side length, eg $\sqrt{"25"}$ (= 5)	
		P1	for a complete process to find volume, eg "5" × "5" × "5" or "25" × "5"	
		A1	cao	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
23	Frequency polygon drawn	B2	for fully correct frequency polygon with points plotted at the midpoints	Joining must be with line segments Accept points plotted within half a small square Ignore any histogram drawn and any part of a frequency polygon outside range of first and last points plotted
	(2.5, 8), (7.5, 24) (12.5, 13) (17.5, 11) (22.5, 4)	(B1	for all points plotted correctly but not joined with line segments **or** points plotted at correct heights not at midpoints but consistently within each interval and joined with line segments **or** correct frequency polygon with one point incorrect **or** correct frequency polygon with first and last points joined directly)	for example, at 0, 5, 10,…or at 5, 10, 15,…
24 (a)	Venn diagram	B3	for a fully correct Venn diagram	Ignore all entries except the region you are marking for each method mark
		(B2	for two or three of the four regions correct)	
		(B1	for just one of the four regions correct)	
(b)	$\frac{7}{10}$	M1	(ft diagram) for $\frac{a}{10}$ where $0 < a < 10$ and a is an integer or $\frac{7}{b}$ where $b > 7$ and b is an integer **or** $1 - \frac{3}{10}$ **or** 7 : 10	Repeated digits in the diagram should be counted as 2 elements
		A1	(ft diagram) for $\frac{7}{10}$ oe	Accept any equivalent fraction, or 0.7 or 70%

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
25 (a)	Description	C1	for a valid description of the relationship **Acceptable examples** As age increases, weight increases The older you are the greater the weight Positive correlation **Not acceptable examples** Positive (relationship) age and weight are in proportion strong correlation or correlation is increasing as the babies get older the heavier they get, negative correlation they are directly proportional, weight goes up as age goes up	Accept positive correlation Ignore any comment about strength
(b)	2.5 to 4.5	B2 (B1	for an answer in the range 2.5 to 4.5 for a suitable line of best fit drawn **or** for a point on the grid at (x, 5.8) where x lies between 2.5 and 4.5 **or** a horizontal line drawn from 5.8 across to (x, 5.8) where x is in the range 2.5 to 4.5)	
26	1200	M1 A1	for a fully correct method, eg 240 ÷ 0.2 or 240 × 5 oe cao SC B1 for an answer of 960 or 1440 if M0 scored	
27	3	P1 P1 A1	for process to find area of base, eg 1200 ÷ 40 (= 30) for process to find pressure, eg 90 ÷ "30" cao	
28	$x = 6$ $y = -2$	B1	cao	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
29	16	M1 A1	for simplifying using a correct rule of indices as a first step eg $4^{9-6}(=\ 4^3$ oe) or $4^{-6-1}\ (=\ 4^{-7}$ oe) or $4^{9-1}\ (=\ 4^8$ oe) **or** $\frac{4\times4\times4\times4\times4\times4\times4\times4\times4}{4\times4\times4\times4\times4\times4\ \times\ 4}$ **or** 4^2 cao	
30	$\frac{1}{2}$	B1	for $\frac{1}{2}$ oe	
31	0.06	M1 A1	for 0.2 × 0.3 oe 0.06 oe	 Accept any equivalent fraction or 6%

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**
2		Wording added ‘Look at the diagram for Question 2 in the Diagram Booklet. It shows a shaded shape.’; Wording ‘this’ removed and replaced with ‘the’. Diagram enlarged. Shading changed.	Standard mark scheme
6		Wording added ‘Look at the diagram for Question 6 in the Diagram Booklet.’ Wording added ‘three’. Wording ‘this’ removed and replaced with ‘the’. Wording added ‘shown in the Diagram Booklet.’ Diagram enlarged, open headed arrows, frames removed, labels straightened, Centre dot enlarged.	Standard mark scheme
8		Wording added ‘Look at the diagram for Question 8 in the Diagram Booklet. It shows two angles marked *x* and 50°’ Diagram enlarged. Angles moved outside the angle arcs. Angle arcs made smaller.	Standard mark scheme
9		Wording added ‘Look at the diagram for Question 9 in the Diagram Booklet. It shows a grid.’ Diagram enlarged. Black grid lines. Crosses changed to solid dots. Open headed arrows. Axes labels moved to top of vertical axis and to right of horizontal axis.	Standard mark scheme
13	(a)	Letter *a* changed to *w*.	Standard mark scheme but note change of letter
13	(b)	Letter *b* changed to *p*; Letter *c* changed to *q*.	Standard mark scheme but note change of letter
13	(c)	Letter *d* changed to *y*.	Standard mark scheme but note change of letter
16		Wording added ‘Look at the information for Question 16 in the Diagram Booklet.’ Wording removed ‘Here’. Frame removed	Standard mark scheme
18		Letter *b* changed to B; Letter *c* changed to C.	Standard mark scheme but note change of letter

23		Table enlarged and left aligned. Black outline and tracking lines added. Values changed in the table: 8 changed to 5; 24 changed to 25; 13 changed to 15; 11 changed to 10; 4 changed to 5 Wording 'Draw' removed and replaced with 'Look at the diagram for Question 23 in the Diagram Booklet. It shows a blank grid. On the grid, draw'. Wording 'this' removed and replaced with 'the'. Axes labels moved to the top of the vertical axis and to the left of the horizontal axis. Right axis labelled. Grid enlarged and small squares removed. Grid lines made black. Open headed arrows.	Standard mark scheme but note the change in points to be plotted.
24		Wording added 'Look at the diagram for Question 24 in the Diagram Booklet. It shows an incomplete Venn diagram.' Wording added 'in the Diagram Booklet'. Diagram enlarged. Labels changed to 'set A' and 'set B'. For Braille add "Ans: (i) __ (ii) __ (iii) __ (iv) __"	Standard mark scheme
25		Wording added 'Look at the diagram for Question 25 in the Diagram Booklet. It shows a scatter graph with'. Wording removed 'The scatter graph shows'. Axes labels moved to the top of the vertical axis and to the left of the horizontal axis. Right axis labelled. Grid enlarged and small squares removed. Grid lines made black. Open headed arrows. Crosses changed to dots.	
25	(b)	Wording added 'in the Diagram Booklet'. Value changed from 5.8 kg to 6.0kg.	B2 for an answer in the range 2.5 to 4.5 (B1 for a suitable line of best fit drawn **or** for a point on the grid at (x, 6) where x lies between 2.5 and 4.5 **or** a horizontal line drawn from 6 across to (x, 6) where x is in the range 2.5 to 4.5)
27		Wording added 'Look at the diagram for Question 27 in the Diagram Booklet. You may be provided with a model. They are NOT accurate. They show'. Wording removed 'The diagram shows'. Diagram enlarged. A floor added to the diagram, labelled 'Floor' to match the model provided. Label '40 cm' changed to 'height 40 cm'. Dashed lines made longer and thicker. Formula moved to top left of the diagram and frame removed. Model provided.	Standard mark scheme

28		Wording added ‘Look at the diagram for Question 28 in the Diagram Booklet. It shows two intersecting straight lines on a grid.’ Equations moved outside the grid. Grid enlarged. Grid lines made black. Open headed arrows. Graph lines made thicker. Axes labels moved to the top of the vertical axis and to the right of the horizontal axis.	Standard mark scheme
31		Wording added ‘Look at the diagram for Question 31 in the Diagram Booklet. It is a probability tree diagram showing’. Wording removed ‘The probability tree diagram shows’ Diagram enlarged.	Standard mark scheme

Mark Scheme (Results)

Summer 2023

Pearson Edexcel GCSE
In Mathematics (1MA1)
Foundation (Calculator) Paper 2F

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
1	6200	B1	for 6200 (accept in words)	
2	$\frac{7}{10}$	B1	or any equivalent fraction	
3	900	B1	cao	
4	$12t$	B1	for $12t$	
5	100	B1	cao	
6 (a)	Cross marked at 0	B1		Allow if intention is clear
(b)	Cross marked at $\frac{1}{2}$	B1		Allow if intention is clear
7 (a)	9.3	B1	accept answer in the range 9.1 to 9.5	
(b)	106	B1	accept answer in the range 104 to 108	
(c)	isosceles	B1	for isosceles	Condone incorrect spelling provided intention is clear
8	96	P1 P1 A1	for process to find total distance before or after using scale, eg 8 + 16 (= 24) **or** "32" + "64" oe for process to use scale, eg 8 × 4 (= 32) or 16 × 4 (= 64) or [PR] × 4 cao	Condone incorrect use of scale if addition seen. where [PR] is 12 or 13 or is clearly stated

Paper: 1MA1/2F					
Question		**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
9	(a)	28	B1	cao	
9	(b)	4 : 9	M1	for 8 : 18 or for any ratio equivalent to 4 : 9 **or** 9 : 4 or 2.25 : 1	
			A1	for 4 : 9	Accept 4 : 9 in the form 1 : *n*, eg 1 : 2.25
10	(a)	6	B1	cao	
	(b)	14 00	M1	for use of graph to find the maximum time paid for, eg £9.00 = 6 hours	May be seen on graph
			M1	for intention to add times, eg 08 00 + "6" hrs	8, 9, 10, 11, 12, 1 is enough to show a clear intention to add For method marks condone use of incorrect time notation
			A1	for 14 00 or 2 pm	Correct time notation required
11		Shown	M1	for at least three of 40 × 1 (= 40), 50 × 2 (= 100), 60 × 4 (= 240), 70 × 5 (= 350), 80 × 3 (= 240), 90 × 1 (= 90) oe	Intention to multiply is enough for award of M1 May be seen as repeated addition
			M1	(dep M1) for a complete method to find comparable figures (allow up to 2 errors in their products), eg 40 × 1 + 50 × 2 + 60 × 4 + 70 × 5 + 80 × 3 + 90 × 1 oe or for 1200 − 40 × 1 − 50 × 2 − 60 × 4 − 70 × 5 − 80 × 3 − 90 × 1 oe	
			A1	for accurate comparable figures, eg 1060 or 140	Condone incorrect difference if 1060 is clearly seen

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12 (a)	Line drawn	B1	for correct line shown on diagram, provided unambiguous	
12 (b)	Explanation	C1	for explanation, eg he has reflected in the *y*-axis (not the *x*-axis) **Acceptable examples** Alex didn't reflect in/on the *x*-axis She/he drew it on the *y*-axis or he didn't draw it on the *x*-axis It should be in the bottom right box Used a mirror on the *y*-axis (not *x*-axis) It needs to be reflected down not across Vertical (reflection) instead of horizontal (reflection) Drawn in the correct position on grid **and** statement "it should be here" **Not acceptable examples** the reflection is facing the wrong way It's in the wrong box or it should be on the bottom She/he has flipped it wrong It needs to go down not across She/he (should have) used a mirror There is no label or label in the wrong place Alex reflected the shape	
13	800	M1 A1	for method to work with fraction and 50, eg 16×50 **or** $50 \div \frac{1}{16}$ **or** $16 \times 50 + 50$ oe or $16 \times 50 - 50$ oe cao	$\frac{1}{16} = 0.0625$ 750 or 850 without working scores no marks

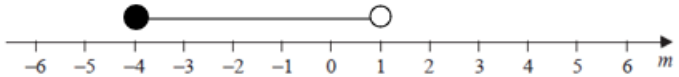
Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
14	864	B1	(indep) for process to convert to common units, eg 72 × 10 (= 720) or 48 × 10 (= 480) or 24 × 10 (= 240) or 80 ÷ 10 (= 8) or 60 ÷ 10 (= 6) or 20 ÷ 10 (= 2) or **or** "96000" ÷ 10^3 (= 96) or "82944" × 10^3 (= 82944000) **or** "0.864" × 10^3	This mark can be awarded at any stage One correct conversion for their method is enough for the award of this mark
		P1	for using volume, eg 80 × 60 × 20 (= 96000) or 72 × 48 × 24 (= 82944) **or** for start of process to find number of packets using one dimension, eg "720" ÷ 80 (= 9) or "480" ÷ 60 (= 8) or "240" ÷ 20 (= 12) or 48 ÷ "8" (= 6) or 72 ÷ "2" (= 36) or 24 ÷ "6" (= 4)	Working may be seen on diagram. May be implied by correctly dividing the areas of corresponding faces
		P1	for full process with or without unit conversion, eg "82 944 000" ÷ "96000" or "82944" ÷ "96" **or** for "9" × "8" × "12" or "36" × "6" × "4" or "0.9" × "0.8" × "1.2" (= 0.864)	9 × 24 × 4 12 × 24 × 3 12 × 6 × 12 36 × 8 × 3 Note sight of digits 864 with decimal point and/or extra zeros scores P2
		A1	cao	

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15	Spinner (supported)	P1	for a process to express one relationship, eg $\frac{2}{6}$ oe or $\frac{3}{8}$ oe **or** 2 : 4 oe or 3 : 5 oe or 2 : 6 oe or 3: 8 oe	Allow use of words to describe relationship, eg 2 out of 6
		P1	for process to express both relationships, eg $\frac{2}{6}$ oe and $\frac{3}{8}$ oe **or** 2 : 4 oe and 3 : 5 oe or 2 : 6 oe and 3: 8 oe	
		C1	for indicating (number greater than 5 on) spinner supported by correct values, eg $\frac{8}{24}$ and $\frac{9}{24}$ **or** 0.33(3..) and 0.37(5) **or** 33(.3..)% and 37(.5)% **or** 10 : 20 and 12 : 20 or 16 : 48 and 18 : 48	Conclusion may be indicated in body of question eg circling spinner or phrase
16	98	M1	for method to use speed, distance and time, eg 56 × [time] or 56 × 105 (= 5880) **or** 56 ÷ 4 × 3 (= 42) **or** 56 ÷ 60 (= 0.933...) **OR** for method to convert decimal time, eg (60 + 45) ÷ 60 (= 1.75) or 45 ÷ 60 (= 0.75)	For this mark accept [time] written unconventionally eg as 1.45, 145, 175, 75
		M1	for a complete method using decimal time, eg 56 × "1.75" **or** "5880" ÷ 60 **or** "0.933..." × 105 **or** 56 + "42" or 56 + "28" + "14"	
		A1	for 97.65 to 98.3	

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
17	540	P1 P1 P1 A1	for start of process, eg 350 + 250 (= 600) **or** 3 × 380 (= 1140) **or** 380 – 350 (= 30) or 380 – 250 (= 130) for process to work with mean and number of seats in at least one cinema, eg 350 + 250 (= 600) **and** 3 × 380 (= 1140) **or** "1140" – 350 (= 790) or "1140" – 250 (= 890) **or** for an equation in x, eg 350 + 250 + x = 3 × 380 **or** 380 – 350 (= 30) and 380 – 250 (= 130) for process to find number of seats in cinema **C**, eg "1140" – "600" or for (x =) "1140" – 350 – 250 380 + "30" + "130" cao	350 + 250 + another number scores no marks eg 350 + 250 + 150 or 350 + 250 + 380
18 (a)	45	P1 P1 A1	for a valid start to the process, eg 180 ÷ 12 (= 15) or 3(.00) ÷ 12 (= 0.25) for complete process, eg "15" × 3(.00) or 180 × "0.25" for 45(.00)	Calculations can be in £ or p or a combination for both process marks

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
18 (b)	9	P1	for a valid start to the process, eg cost of each can, eg 7(.00) ÷ 24 (= 0.2916...) or 700 ÷ 24 (= 29.16...) **or** total volume of 24 cans, eg 330 × 24 (= 7920) **or** proportion of m*l*, eg 330 ÷ 100 (= 3.3)	Calculations can be in £ or p
		P1	for complete process, eg $\frac{100}{330}$ × "0. 2916..." (= 0.08838...) or $\frac{100}{330}$ × "29.16..." (= 8.838...) **or** $\frac{100}{"7920"}$ × 7(.00) (= 0.08838...) or 7(.00) ÷ 24 ÷ $\frac{330}{100}$ (= 0.08838...) or 7(.00) ÷ $\frac{"7920"}{100}$ (= 0.08838...)	
		A1	for 9	Accept £0.09(p)
19 (a)	45 150 105 90 65 25	B3	for a fully correct frequency tree	If probabilities used instead of frequencies award a maximum of B2
		(B2	for at least 4 figures correctly placed)	
		(B1	for at least 1 figure correctly placed)	
(b)	30	M1	for eg $\frac{45}{150}$ oe or 45 ÷ 150 (= 0.3) **or** for $\frac{\text{[number of car owners who own a bicycle]}}{\text{[total number of people who own a car]}}$ ft diagram oe	Must be values from their diagram with numerator < denominator
		A1	for 30 **or** ft diagram	

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
20 (a)	1.765(2...)	M1	for fully evaluating the numerator or denominator, eg 18.3... or 10.4(1) **or** answer of 1.76 or 1.77 **or** digits 1765(2...)	
		A1	for 1.765(2.....)	Answer must be given to at least 3 decimal places rounded or truncated. Check first 4 significant figures only.
(b)	1.6	B1	for 1.6 oe	
21	$2 \times 2 \times 3 \times 5$	M1	for a complete method to find prime factors, could be shown on a complete factor tree, with no more than one error or by division by prime factors with no more than one error **or** for 2, 2, 3, 5 (1)	Condone the inclusion of 1 for the method mark
		A1	for $2 \times 2 \times 3 \times 5$ oe	Accept $2^2 \times 3 \times 5$
22	No with reason	C1	for No and valid reason, eg compares $\frac{1}{3}$ with $\frac{1}{2}$ or 16 (with 24) **Acceptable examples** No, $\frac{1}{3}$ are red not $\frac{1}{2}$ There are 16 red counters (not 24) No as she has used the ratio 1:1 (not 1:2) Incorrect as it is 16 : 32 No as she should divide by 3 (as 1 + 2 = 3) No as they would both be 24 so it doesn't fit in the ratio 1 : 2 No because 24 + 48 = 72 **Not acceptable examples** Yes, … No as the number of red counters would be lower There is 1 red for every 2 blue	

Paper: 1MA1/2F					
Question		**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
23	(a)	4	B1	cao	
	(b)	correct diagram	C2	for a fully correct diagram, eg 	
			(C1	for drawing a line from –4 to 1 **or** (indep) for an open circle at 1 **or** (indep) for an closed circle at –4)	Condone arrow heads or line ending to denote the 'end' of the line
	(c)	$g < 25$	M1	for a correct first step, eg adding 4 to both sides, eg $\frac{2}{5}g < 6 + 4$ or multiplying throughout by 5, eg $2g - 4 \times 5 < 6 \times 5$ **or** dividing throughout by 2, eg $\frac{1}{5}g - 4 \div 2 < 6 \div 2$	Allow use of any inequality or as an equation for both method marks $\frac{2}{5}g < 10$ $2g - 20 < 30$ $\frac{g}{5} - 2 < 3$
			M1	for a correct second step, eg $2g <$ "10" $\times 5$ or $\frac{1}{5}g <$ "10" $\div 2$ **or** $2g <$ "30" + "20" or $g -$ "20" $\div 2 <$ "30" $\div 2$ **or** $\frac{g}{5} <$ "3" + "2" or $g -$ "2" $\times 5 <$ "3" $\times 5$ **or** showing 25 as the critical value	$2g < 50$ $\frac{g}{5} < 5$ $g - 10 < 15$ Can be written as $g = 25$
			A1	for $g < 25$ oe	

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
24	1.25	P1	for finding an expression for the area of one shape, eg $\frac{1}{2} \times 8 \times 6x$ (= $24x$) or $5(4x - 1)$ (= $20x - 5$) oe	Condone missing brackets for area of rectangle for all process marks
		P1	for finding an expression for the area of both shapes, eg $\frac{1}{2} \times 8 \times 6x$ **and** $5(4x - 1)$ oe **or** [area of triangle] – 10 or [area of rectangle] + 10 oe or [area of triangle] – [area of rectangle]	
		P1	for writing a correct equation, eg $\frac{1}{2} \times 8 \times 6x = 5(4x - 1) + 10$ oe **or** (dep on 1st P1) eg [area of triangle] – 10 = [area of rectangle] or [area of triangle] = [area of rectangle] + 10 or [area of triangle] – [area of rectangle] = 10	
		A1	for 1.25 oe	

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
25	168	P1	for a start to the process, eg $\frac{57}{100} \times 800$ (= 456) or 57 ÷ (12 + 7) (= 3) **or** 800 ÷ (12 + 7) (= 42.1...) **or** [amount] × $\frac{57}{100}$ or [amount] × $\frac{7}{12+7}$	May be seen as part of other calculations, eg $\frac{7}{12+7} \times 57$ (= 21) or $\frac{7}{12+7} \times 800$ (= 294.7...) [amount] can be any figure considered as being 57% of 800 or 43% calculated incorrectly or a figure calculated from using full or partial ratio incorrectly as a first step
		P1	for a complete process to find the weight of glass, eg $\frac{57}{100} \times 800 \times \frac{7}{12+7}$ oe	
		A1	for an answer in the range 167.9 to 168 SCB2 for an answer of 288	
26	12.65, 12.75	B1	for 12.65 in correct position	
		B1	for 12.75 in correct position	Accept 12.74$\dot{9}$ or 12.7499(…)

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
27	Rachel supported	P1	for process to begin to work with percentage for year 1 for Tamsin or Rachel, eg 150000 × 0.04 (= 6000) oe or 150000 × 1.04 (= 156000) oe **or** 160000 × 0.015 (= 2400) oe or 160000 × 1.015 (= 162400) oe	May be implied by 12000 or 4800 or 162000 or 164800
		P1	for process to use compound interest for Tamsin or Rachel, eg "156000" × 0.04 (= 6240) oe or "156000" × 1.04 (= 162240) oe **or** "162400" × 0.015 (= 2436) oe or "162400" × 1.015 (= 164836) oe **or** 1.04^2 (= 1.0816) or 1.015^2 (= 1.030225) **OR** for process to begin to work with percentage increase for Tamsin **and** Rachel for one year, eg 150000 × 1.04 (= 156000) oe **and** 160000 × 1.015 (= 162400) oe	values may be rounded or truncated to 3 sf May be implied by 162000 **and** 164800
		P1	for full process to find figures to compare, eg Tamsin for 2 years **and** Rachel for 2 years eg 150000 × 1.04^2 (= 162240) oe **and** 160000 × 1.015^2 (= 164836) oe **OR** Tamsin for 2 years **and** Rachel for 1 year, eg 150000 × 1.04^2 (= 162240) oe **and** 160000 × 1.015 (= 162400) oe	Other comparisons are possible
		C1	for Rachel with supporting figures, eg 162240 **and** 164836 **or** 162240 **and** 162400 **or** other valid conclusion with supporting comparable figures	Note that the figure used to compare for Rachel can be the figure after 2 years or after 1 year
28	B, D, E, C, A	B3 (B2 (B1	for all correctly matched for 3 or 4 correctly matched) for 2 correctly matched)	

Modifications to the mark scheme for Modified Large Print (MLP) papers: 1MA1 2F

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_2F			
Question		**Modification**	**Mark scheme notes**
6	(a)	Wording added 'Look at the diagram for Question 6(a) in the Diagram Booklet. It shows a probability scale.' Wording removed 'with a cross (x)' Numbers moved to above the scale.	Standard mark scheme
6	(b)	Wording added 'Look at the diagram for Question 6(b) in the Diagram Booklet. It shows a probability scale.' Wording removed 'with a cross (x)' Numbers moved to above the scale.	Standard mark scheme
7	(a) (b)	Wording added 'Look at the diagram for Question 7(a) and 7(b) in the Diagram Booklet. It shows'. Wording removed 'Here is' Wording added 'ABC.' Triangle enlarged such that AC is exactly 15cm, angle B is exactly 100° and BC is 10cm.	(a) Accept answer in the range 14.5 to 15.5 (b) Accept answer in the range 95 to 105
7	(c)	Wording added 'Look at the diagram for Question 7(c) in the Diagram Booklet. It shows' Wording removed 'Here is' Wording added 'PQR.' Diagram enlarged.	Standard mark scheme
8		Wording added 'Look at the diagram for Question 8 in the Diagram Booklet. It' Wording removed 'The diagram' Diagram enlarged. Arrows removed. Vertical lines added at P, Q, and R. Wording added 'PQ represents 8 cm. QR represents 16 cm' Braille: Wording added "The diagram IS accurately drawn." Extra information added: "In the diagram: PQ = 8 cm QR = 16 cm"	Standard mark scheme
10		Wording added 'Look at the diagram for Question 10 in the Diagram Booklet. It shows a graph that'. Wording removed 'This graph'. Wording '12 hours' removed and replaced with '8 hours'. Diagram enlarged but grid reduced to 8 hours and £12. Open headed arrows. Black grid lines. Graph line made thicker. Axes labels moved to above the vertical axes and left of the horizontal axes. Graph cut to allow for enlargement and to reduce the amount of information presented.	Standard mark scheme
11		Wording added 'Look at the table for Question 11 in the Diagram Booklet. It'. Wording removed 'The table'. Table enlarged. Number of people column widened, to allow for working out in the table.	Standard mark scheme

12	(a)	Wording added ‘Look at the diagram for Question 12(a) in the Diagram Booklet. It shows a grid.’ Grid enlarged. Shading changed. Shapes labelled ‘shape A’ and ‘shape B’. Grid cut. Black grid lines. Wording added ‘in the Diagram Booklet’.	Standard mark scheme
12	(b)	Wording added ‘Look at the diagram for Question 12(b) in the Diagram Booklet. It shows a grid.’ Wording ‘Here is the diagram Alex draws.’ removed and replaced with ‘The diagram shows the reflection, shape R, that Alex draws.’ Wording added ‘is shown in the Diagram Booklet.’ Diagram enlarged. Open headed arrows. Shading changed. Right shape labelled ‘shape P’. Left shape labelled ‘shape R’. Black grid lines.	Standard mark scheme
14		Wording added ‘Look at the diagram for Question 14 in the Diagram Booklet. You may be provided with two models. The models show a packet and a box. The diagram shows a packet and a box.’ Diagrams enlarged. Titles moved to above the diagrams. Dimension labels moved to the left.	Standard mark scheme
15		Wording added ‘Look at the diagram for Question 15 in the Diagram Booklet. It shows’. Wording removed ‘Here is’. Diagrams enlarged and stacked vertically. Spike removed from the spinner and replaced with a dot in the centre. Dice straightened up and rotated so that the number 6 is on the front section. Braille: Model of Tactile dice provided. . Sentence changed to “Ask for the dice for Question 15. It is a fair ordinary dice.”	Standard mark scheme
19		Wording added ‘Look at the diagram for Question 19 in the Diagram Booklet. It shows an incomplete frequency tree.’ Wording ‘this information’ removed and replaced with ‘the information above’. Wording added ‘in the Diagram Booklet.’ Diagram enlarged. Braille: Add (i), (ii), (iii), (iv), (v) and (vi) in the blank spaces on the diagram. Add answer lines “Ans: (i) __ (ii) __ (iii) __ (iv) __ (v) __ (vi) __”	Standard mark scheme
23	(b)	Wording added ‘Look at the diagram for Question 23(b) in the Diagram Booklet. It shows a number line’. Wording removed ‘below’. Diagram enlarged. Open headed arrow. Axis label moved to the right of the horizontal axis.	Standard mark scheme
23	(c)	Letter ‘g’ changed to ‘t’.	Standard mark scheme but note letter change.

24		Wording added ‘Look at the diagram for Question 24 in the Diagram Booklet. It shows a triangle ABC and a rectangle PQRS.’ Wording removed ‘Here is a triangle and a rectangle.’ Triangle labelled ABC. Rectangle labelled PQRS. Diagram enlarged. Diagrams stacked vertically. Right angle made more obvious. Shape labels moved to the left and to above the rectangle. Wording added ‘In triangle ABC: AB is marked $6x$; BC is marked 8; Angle ABC is a right angle. In rectangle PQRS: PQ is marked 5; PS is marked $4x - 1$’	Standard mark scheme
26		Letter ‘*d*’ changed to ‘*n*’.	Standard mark scheme but note letter change.
28		Wording added ‘Look at the diagram for Question 28 in the Diagram Booklet. It shows five graphs labelled A – E.’ Wording removed ‘Here are five graphs.’ Diagrams enlarged. Open headed arrows. Graphs labelled ‘Graph A’, ‘Graph B’, ‘Graph C’, ‘Graph D’, and ‘Graph E’. Axes labels moved to the top of the vertical axes and to the right of the horizontal axes. Wording added ‘below’. Table enlarged and left aligned.	Standard mark scheme

Mark Scheme (Results)

Summer 2023

Pearson Edexcel GCSE
In Mathematics (1MA1)
Foundation (Calculator) Paper 3F

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
1	3107	B1	cao	
2	30	B1	cao	
3	$4m$	B1		
4	4	B1	cao	
5	–5, –2, 3, 7, 9	B1	cao	Accept in reverse order
6 (a)	14	B1	cao	
(b)	18	B1	cao	
7 (a)	evens	C1	oe	
(b)	certain	C1	oe	
(c)	0.6	B1	oe	Accept 60% or an equivalent fraction eg $\frac{6}{10}$
8 (a)	Square	C1	for statement of shape	Accept unambiguous misspellings.
(b)	Cuboid	C1	for statement of solid	Accept unambiguous misspellings. Accept square based prism

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
9 (a)	6	M1	for ordering the numbers or showing a complete method of (5+7) ÷ 2	
		A1	cao	
(b)	8	B1	cao	
(c)	Bar chart	B1	for correct person labels or a linear scale	Accept key in place of labels Accept unambiguous abbreviations eg Frequency or Number, X,M,K,T
		M1	for correct bars showing information for at least 2 people	Condone bars of varying widths Condone no gaps or inconsistent gaps
		A1	for a fully correct bar chart with linear scale of numbers on the vertical axis and a set of person labels on the horizontal axis	
10	Yes (supported)	P1	for starting a process of working with time eg for undertaking some time conversion eg 85 mins is 1 hr 25 mins, 1 hr 45 min is 105 mins **or** for recognition that 1 h = 60 min (eg 85 = 60 + 25)	Time conversion may be implied by a correct addition over the hour eg 8.30 + 1h 45m = 10.15, 10.30 + 85 = 11.55 Can be shown at any stage.
		P1	for a correct addition of at least two times eg 15 + 85 =100 **or** a correct duration eg 8 30 + 1 h 45 m = 10 15 **or** a correct subtraction eg 12 (noon) – 15 = 11 45	A correct duration can be shown using their times for any of the stages. Subtraction of any of the time durations
		P1	for a complete process to justify the decision eg 8 30 + 1 hr 45 min + 85 + 15 (= 11 55) **or** 105 + 15 + 85 (=205 min) **and** 12 (noon) − 8 30 (= 210 min)	Accept their figures for 1 hr 45 min, 85 etc as long as it is clear they are related.
		C1	Yes **and** accurate figures eg 11 55 **or** 205 **and** 210	

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
11	13	P1	for beginning to process problem eg 72 – 7 (= 65) **or** writing $5x + 7 = 72$ oe	
		P1	for a complete process eg "65" ÷ 5 oe **or** writes $5x = 65$ oe	
		A1	cao	
12 (a)	Merit	B1	cao	
(b)	24	M1	for beginning to work with proportion eg 105 ÷ 7 (= 15) or 7 ÷ 105 (= 0.07 or 0.06....) or 360 × 7 (= 2520) **or** $\frac{360}{105}$ (= 3.4…) **or** works out a quantity for one sector eg $\frac{7}{105}\times 30$ (= 2), $\frac{7}{105}\times 75$ (= 5), $\frac{7}{105}\times 150$ (= 10),	
		M1	for a complete method eg $\frac{360}{105}\times 7$ oe or "3.4…" × 7 **or** 360 ÷ "15" or 360 × "0.06.." **or** "2520" ÷ 105 **or** 7 + "2" + "5" + "10"	
		A1	cao	

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13 (a)(i)	30	B1	cao	
(ii)	10	B1	cao	
(b)	Drawn	M1	for a line from (1330 , 35) to (1500 , 35) **or** a line to the *x* axis from a point on *y* = 35 to 1600 on the *x* axis	
		A1	fully correct graph	
(c)	35	B1	for 35 or ft their graph	ft must be 35 ÷ time duration for their line
14	1.3	M1	for working with boxes or bags eg 600 ÷ 120 (= 5) or 1000 ÷ 270 (= 3.7(037..)) 6 ÷ 120 (=0.05) or 10 ÷ 270 (= 0.037(037..))	Cost ÷ quantity For the M marks allow working in £ instead of p.
		M1	for working with bags and boxes where they are working to the same quantities of boxes and bags eg 600 ÷ 120 (= 5) **and** 1000 ÷ 270 (= 3.7(037..)) 6 ÷ 120 (=0.05) **and** 10 ÷ 270 (= 0.037(037..))	Other values are possible where they are using alternative quantities of boxes and bags, but these must be the same quantities of each.
		M1	for finding the difference eg "5" – "3.7(037..)" (= 1.29.. to 1.3) or "0.05" – "0.037(037..))" (= 0.0129.. to 0.013)	Must have consistent units for this mark.
		A1	for answer in the range 1.29 to 1.3	If an answer is given in the range in working and then rounded incorrectly award full marks.

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15	175	M1 A1	for a complete method eg 35 × (4 + 1) oe cao	
16	Rotation of 90(º), centre (0,0)	B2 (B1	Rotation of 90 about (0,0) **or** Rotation of 270, clockwise about centre (0,0) Rotation and 90 **or** Rotation and 270, clockwise **or** Rotation about (0,0))	Accept "origin" or "O" for (0,0)
17	Drawing	B1 B1	for drawing point *R* from *T* at a distance of 5.5 cm. for drawing point *R* from *T* on a bearing of 65º	Unless ambiguous point *R* can be indicated by a cross, dot, or interpreted as the end of a line drawn from *T*.
18	4	M1 M1 A1	for a correct first step eg shows $4 \times 2x - 4 \times 3$ or $8x - 12$ or $2x - 3 = \frac{20}{4}$ for isolating terms in x eg $2x = 5 + 3$ cao	

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
19	2.5	P1	for 450 ÷ 6 (= 75) **or** statement $450 = \frac{3000 \times 6 \times y}{100}$ oe	
			or $\frac{450}{3000}$ (= 0.15) or $\frac{450 \times 100}{3000}$ (= 15)	
		P1	for "75" ÷ 3000 (= 0.025) **or** (y =) $\frac{450 \times 100}{3000 \times 6}$ oe	
			or $\frac{"0.15"}{6}$ (= 0.025) or $\frac{"15"}{6}$ **or** $\frac{3000 + "75"}{3000}$ (= 1.025)	
		A1	cao	
20 (a)	m^6	B1	cao	
(b)	x^{13}	B1	cao	
(c)	$4p^3 + 12p^2$	B2	for $4p^3 + 12p^2$	
		(B1	for expanding the bracket to get $p^3 + 3p^2$ **or** $4p^3$ **or** $12p^2$)	

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
21 (a)	11533	P1	for working with 68%, eg 800 × 0.68 (= 544 people) oe or "16960" × 0.68 oe	Percentage calculation could be done at any stage
		P1	for a correct process, other than that of finding a %, eg "544" × 2 (= 1088) or 10.6 × 2 (= 21.2) or 800 × 2 (= 1600) or "544" × 10.6 (= 5766.4) or 800 × 10.6 (= 8480)	
		P1	for full process to find amount of coffee required eg "1088" × 10.6 or "544" × "21.2" or "5766.4" × 2 (= 11532.8) or for an answer of 11532	
		A1	for answer in the range 11532.5 to 11533	If a correct answer within the range is shown in working but incorrectly rounded award full marks.
(b)	Statement	C1	for a correct statement **Acceptable examples** the amount will be more; he will need more coffee it is an underestimate my answer in part (a) means there would not be enough for everyone he will need 12211(.2); needs 678(.4) more **Not acceptable examples** amount will decrease, amount of coffee will change	If figures are given as part of the answer they must be correct, but can allow ft.

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
22	Shown with reasons	M1	for method to find *ACD* using parallel lines eg *BCA* = 125 **and** *ACD* = 180 – 125 (= 55) **or** *BCF* = 180 – 125 (= 55) = *ACD* **or** *FCD* = 125 **and** *ACD* = 180 – 125 (= 55) **or** *CFG* = 180 – 125 (= 55) = *ACD*	Angles must be clearly labelled on the diagram or otherwise identified. Correct method can be implied from angles on the diagram if no ambiguity or contradiction.
		M1	for method to find *ADC* eg 180 – 110 (= 70) **or** for method to find *CAD* eg 180 – ("70" + "55") (= 55) or 110 – "55" (= 55)	
		A1	for *ACD* = 55 **and** *CAD* = 55	
		C1	for one correct parallel lines reason linked to their method eg Corresponding angles are equal Allied angles / Co-interior angles add up to 180 Alternate angles are equal	Underlined words need to be shown; reasons need to be linked to their method, which can be implied from correctly identified angles (stated or written on the diagram).
		C1	for one other reason stated linked to their method eg Angles on a straight line add up to 180 Angles in a triangle add up to 180 Vertically opposite angles are equal OR Vertically opposite angles are equal The exterior angle of a triangle is equal to the sum of the interior opposite angles. Angles in a quadrilateral add up to 360. Accept "4-sided shape"	
23	17.5	P1	for a first step, eg 5 × 14 (= 70) or 14 ÷ 4 (= 3.5) or 5 ÷ 4 (= 1.25) or 4 ÷ 5 (= 0.8)	Could be done algebraically. 11.2 as answer scores no marks.
		A1	oe	

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
24 (a)	63	B1	for 63, accept $3 \times 3 \times 7$ or $3^2 \times 7$	
(b)	15 876	M1	for at least two of 2^2, 3^4, 7^2 **or** shows at least 3 multiples of 2268, eg 2268, 4536, 6804 and at least 3 multiples of 441, eg 441, 882, 1323	(A =) $2^2 \times 3^4 \times 7$ scores 0 marks
		A1	for 15 876 or $2^2 \times 3^4 \times 7^2$ oe	
25	65	P1	for a correct process to find the number of seconds, eg 67 205 600 ÷ 11.9 (= 5 647 529.4...) **or** for a correct process to convert between seconds and days, eg 24 × 60 × 60 (= 86 400) oe, may be seen in stages or 11.9 × 60 × 60 × 24 (= 1 028 160)	Note that this mark may be awarded at any stage in the working.
		P1	for a complete process, eg "5 647 529.4..." ÷ "86 400" or 67 205 600 ÷ "1 028 160"	
		A1	accept answers in the range 65 to 65.4 or 66	If a correct answer within the range is shown in working but incorrectly rounded award full marks.
26 (a)	(1, –3)	B1	cao	
(b)	−0.7 or 2.7	B1	for an answer in the range –0.8 to –0.6 **or** 2.6 to 2.8	

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
27	648	M1 A1	for substitution into density formula eg 9×72 or $9 = \frac{m}{72}$ cao	
28 (a)	1 : 50	M1 A1	for an equivalent ratio eg 9 : 450 **or** $9 : 4.5 \times 10^2$ **or** 90000 : 4500000 oe **or** for 4500000 ÷ 90000 or $\frac{4500000}{90000}$ (=50) For 1 : 50, accept $n = 50$	
(b)	56250×10^{-3} 0.005625×10^5 5625 5.625×10^4	M1 A1	for writing numbers correctly in a common format eg 56250, 56.25, 562.5 **or** a correct list with one error **or** correct list but in reverse order for correct list	Count an omission as one error. Accept alternative indications of the correct order.

Modifications to the mark scheme for Modified Large Print (MLP) papers: 1MA1 3F

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_3F			
Question		**Modification**	**Mark scheme notes**
6		Wording added ‘Look at the diagram for Question 6 in the Diagram Booklet. It shows a shape on a square grid. Each square on the grid represents a 1 cm square.’ Wording removed ‘The diagram shows a shape on a centimetre grid.’ Shading changed. Diagram enlarged with fewer squares around the shape. Wording added ‘Remember each square on the grid represents a 1 cm square.’	Standard mark scheme
7		Wording added ‘Look at the diagram for Question 7 in the Diagram Booklet. It shows’. Wording removed ‘Here is’. Diagram enlarged and straightened. Spike removed. Centre dot added. In (a) and (b) wording added ‘from the list below’. Braille: in (a) and (b) frame removed; add (i) impossible, (ii) unlikely, (iii) evens, (iv) likely, and (v) certain	Standard mark scheme
8	(b)	Wording added ‘Look at the diagram for Question 8(b) in the Diagram Booklet. You may be provided with a model. They are NOT accurate. They show’. Wording removed ‘The diagram shows’. Diagram enlarged. Dashed lines made longer and thicker.	Standard mark scheme
9		Wording added ‘below’. Table enlarged. Wording added to the table ‘(X)’, ‘(M)’, ‘(K)’, and ‘(T)’. In part (c) wording added ‘Look at the diagram for Question 9(c) in the Diagram Booklet. It shows a blank grid.’; Grid enlarged.	Standard mark scheme
12		Wording added ‘Look at the diagram for Question 12 in the Diagram Booklet. It shows a pie chart.’ Diagram enlarged. Angle arcs removed. Segment labels rearranged.	Standard mark scheme
13		Wording added ‘Look at the diagram for Question 13 in the Diagram Booklet. It shows a graph.’ Wording ‘Here is a’ removed and replaced with ‘A’. Wording added ‘is shown in the Diagram Booklet.’ Diagram enlarged. Axes labels moved to above the vertical axes and left of the horizontal axes. Right axis labelled. Open headed arrows.	Standard mark scheme
16		Wording added ‘Look at the diagram for Question 16 in the Diagram Booklet. It shows shape A and shape B on a grid. A cut out shape may be available if you wish to use it.’ Shading changed. Diagram enlarged. Grid cut. Shapes labelled ‘shape A’ and ‘shape B’. One unlabelled cut out shape provided.	Standard mark scheme

PAPER: 1MA1_3F			
Question		**Modification**	**Mark scheme notes**
17		Wording added 'Look at the diagram for Question 17 in the Diagram Booklet. It'. Wording removed 'The diagram'. North line made 9 cm to allow for specialist equipment. Open headed arrows. Wording 'with a cross (x).' removed and replaced with 'on the diagram.' Value '55 km' changed to '75 km'.	B1 if the distance of point R from T is in the range 7 to 8 cm B1 if the bearing of point R from T is in the range 60º to 70º
20	(b)	Letter '*x*' changed to '*y*'.	Standard mark scheme but note change of letter.
21	(a)	Letter '*g*' at end of answer line changed to 'grams'	Standard mark scheme
22		Wording added 'Look at the diagram for Question 22 in the Diagram Booklet. It shows triangle AGF and two straight lines ACF and ADG.' Wording removed 'ACF and ADG are straight lines.' Wording added 'Angle CDG = 110°; Angle EFC = 125°' Diagram enlarged. Angles moved outside of angle arcs. Angle arcs made smaller.	Standard mark scheme
24	(b)	Wording added 'Remember: A = $2^2 \times 3^4 \times 7$ B = $3^2 \times 7^2$'	Standard mark scheme
26		Wording added 'Look at the diagram for Question 26 in the Diagram Booklet. It shows'. Wording 'Here is' removed. Diagram enlarged. Axes labels moved to above the vertical axes and right of the horizontal axes.	Standard mark scheme
27		Letter '*g*' at end of answer line changed to 'grams'	Standard mark scheme