



Pearson
Edexcel

Mark Scheme (Results)

November 2021

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 $2 \times 6 (=12)$ then the mark can be awarded **either** for the correct method, implied by the calculation **or** for the correct answer to the calculation.

12 Use of inverted commas

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

13 Word in square brackets

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

14 Misread

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

Guidance on the use of abbreviations within this mark scheme

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

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
1	30	B1	cao	
2	-10, -7, -2, 0, 1, 8	B1	Accept the reverse order, eg 8, 1, 0, -2, -7, -10	
3	0.09	B1	cao	Accept an answer of .09
4	330	B1	cao	
5	49	B1	cao	
6 (a)	Trapezium	B1	for trapezium	Accept incorrect spelling provided intention is clear Accept incorrect spelling provided intention is clear
(b)	Cylinder	B1	for cylinder	
7	14	M1 A1	for $42 \div 3$ cao	
8	Error identified	C1	error correctly identified Acceptable examples bar for brown is too high 16 should be 15 brown needs to be one less brown is wrong the graph does not match the table Not acceptable examples no title the gaps between the bars are wrong	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
9	No with correct figures	P1 P1 A1	for $1.20 + 0.70 + 2.30 + 2.30 (= 6.5(0))$ or for adding 3 correct costs or for 2 correct costs plus change or for 10 – 2 correct costs for a complete correct method, eg $10 - "6.50"$ or $10 - 1.20 - 0.70 - 2.30 - 2.30 (=3.50)$ or $1.20 + 0.70 + 2.30 + 2.30 + 3.30 (=9.80)$ for No with correct figures, eg $3.5(0)$ or $9.8(0)$	Could work in £ or p for P marks Accept $2.30 + 2.30 (= 4.60)$ as 2 costs Accept absence of "0" in pence column
10	7	P1 A1	for process to find temperature on Wednesday, eg $5 - 10 + 3 (= -2)$ or $-10 + 3$ or $10 - 3$ for 7, accept -7	Be aware of correct use of a number line
11 (a)	16	B1	cao	If the scale is misread in part (a), allow ft marks in parts (b) and (c) for all marks provided consistently used.
(b)	12	M1 A1	for 22 or 10 or $(11 - 5) \times 2$ oe or 1.5×8 oe cao	
(c)	Pictogram	C3 (C2) (C1)	for Thursday = 8 drawn oe and Friday = 24 drawn oe for Thursday = 8 drawn oe or for Friday = 24 drawn oe or Thursday = 8 and Friday = 24 or for Thursday = 24 drawn oe and Friday = 8 drawn oe) for $32 \div 4 (= 8)$ or $32 \div 4 \times 3 (= 24)$ or $32 \div 8$ or for a total of 32 drawn for Thursday and Friday)	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
12	Yes, supported by correct working	P1 P1 A1	<p>for 36 : 48 oe</p> <p>OR</p> <p>$\frac{36}{84}$ oe or $\frac{48}{84}$ oe</p> <p>for $\frac{4}{7}$ or 3 : 4 oe (for group 2)</p> <p>OR</p> <p>$(\frac{36}{84} = \frac{3}{7})$ or $(\frac{48}{84} = \frac{4}{7})$</p> <p>or $84 \times 3 \div 7$ (= 36 boys) or $84 \times 4 \div 7$ (= 48 girls)</p> <p>or $N \times 3 \div 7$ and $N \times 4 \div 7$</p> <p>for Yes with both ratios 3 : 4 oe</p> <p>or for a correct pair of fractions and stating they are equivalent.</p>	<p>Relating to drama group 1</p> <p>Relating to drama group 2</p> <p>N can be any number (other than 84) of students in the 2nd group</p> <p>Both equivalent forms of the ratios (fractions) must be the same</p> <p>“Yes” may be implied from working</p>
13 (a)	Explanation	C1	<p>for explanation</p> <p>Acceptable examples</p> <p>the sequence is going +1, +2 so the next term is +3</p> <p>1 +1= 2, 2 +2= 4, 4 +3= 7</p> <p>add the current term position to the term to get the next term</p> <p>add the two previous terms and add 1</p> <p>Not acceptable examples</p> <p>you add 1 each time</p> <p>the number goes up by 3</p> <p>7 is wrong it should be 8 because you double each time</p>	The pattern may be just seen on the sequence given
(b)	36	M1 A1	<p>for finding the next term of $10 + 5$ (=15) or for $\frac{1}{2} \times 8 \times (8 + 1)$ oe</p> <p>cao</p>	

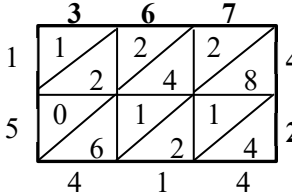
Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
14	3.3(0)	P1 P1 OR P1 A1	<p>for a process to find cost of 1 kg of carrots, eg $1.80 \div 3 (= 0.60)$</p> <p>for a start to a process to find cost of 1kg of potatoes, eg $3.45 - 2 \times "0.60" (= 2.25)$ or $(1.80 + 3.45) \div 5 (= 1.05)$</p> <p>OR</p> <p>for a process to find the cost of 4 kg of carrots, eg $"0.60" \times 4 (= 2.40)$</p> <p>(dep on P2) for a complete process to find the cost of 4 kg of carrots and the cost of 2 kg of potatoes,</p> <p>eg $"0.60" \times 4 (= 2.40)$ and $("2.25" \div 5) \times 2 (= 0.90)$ or $"0.60" \times 4 (= 2.40)$ and $("1.05 - "0.60") \times 2 (= 0.90)$</p> <p>cao</p>	<p>Could work in £ or p for P marks Condone incorrect money notation</p> <p>1 kg of potatoes = (£)0.45 or 45p</p> <p>Award 0 marks for a correct answer with no supportive working.</p>
15	(a) $2a + 2d$ (b) $y(6y - 5)$ (c) 11	B1 B1 M1 A1	<p>cao</p> <p>cao</p> <p>for isolating x terms, eg $4x = 37 + 7$ or $4x = 44$ or for $x - \frac{7}{4} = \frac{37}{4}$ or for $37 + 7 = 44$ followed by $"44" \div 4 (= 11)$</p> <p>cao</p>	<p>Accept $2 \times a + 2 \times d$</p> <p>Accept $y \times (6y - 5)$</p>

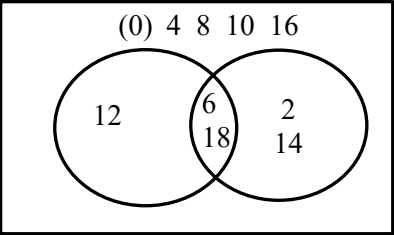
Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
16 (a)	Explanation	C1	for explanation, eg AB cannot be zero (cm) or shows AB to be zero, eg $4 \times 0.5 - 2 = 0$	Accept say ' AB would then be 0'
(b)	2.5	P1	for a correct expression for AD , eg $3(4x - 2)$ or $12x - 6$ OR $2(3AB + AB) = 64$ oe or $3AB + AB = 32$ oe or $AB = 8$ OR for an equation with mixed variables, eg. $6AB + 2(4x - 2) = 64$	May be seen on diagram
		P1	for forming a correct equation in x , eg $4x - 2 + 4x - 2 + 3(4x - 2) + 3(4x - 2) = 64$ or $4x - 2 = 8$ or $4x - 2 + 3(4x - 2) = 32$	
		A1	cao	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
17 (a)	42	P1	<p>for a correct start to the process by finding the number of batches for one ingredient, eg $500 \div 125 (= 4)$ or $700 \div 200 (= 3.5 \text{ or } 3)$ or $250 \div 50 (= 5)$</p> <p>OR</p> <p>for a correct start to building up number of batches of all ingredients, eg. (24 biscuits or 2 batches =) 250 (butter), 400 (flour) and 100 (sugar)</p> <p>OR</p> <p>for a start to the process by finding the amount of one ingredient needed to make 1 biscuit, eg $125 \div 12 (= 10 \frac{5}{12})$ or $200 \div 12 (= 16 \frac{8}{12})$ or $50 \div 12 (= 4 \frac{2}{12})$</p>	
		P1	<p>for a correct process to find the number of batches for all 3 ingredients, eg $500 \div 125 (= 4)$ and $700 \div 200 (= 3.5 \text{ or } 3)$ and $250 \div 50 (= 5)$</p> <p>OR</p> <p>for a build-up process reaching a point where there is not enough of one ingredient, eg. (36 biscuits or 3 batches =) 375 (butter), 600 (flour) and 150 (sugar) or (48 biscuits or 4 batches =) 500 (butter), 800 (flour) and 200 (sugar)</p> <p>OR</p> <p>for a correct process to find the amount of each ingredient needed to make 1 biscuit, eg $125 \div 12 (= 10 \frac{5}{12})$ and $200 \div 12 (= 16 \frac{8}{12})$ and $50 \div 12 (= 4 \frac{2}{12})$</p>	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
(b)	Explanation	P1 A1 C1	<p>(dep on P2) for a process to find the number of biscuits, eg "4" \times 12 (= 48) or "3.5" \times 12 (= 42) or "3" \times 12 (= 36) or "5" \times 12 (= 60)</p> <p>OR (dep on P2) for $(700 - 600) \div 200 \times 12$ (= 6) or "3" \times 12 (= 36)</p> <p>OR (dep on P2) for a process to find the number of biscuits, eg $500 \div "10 \frac{5}{12}"$ (= 48) or $700 \div "16 \frac{8}{12}"$ (= 42) or $250 \div "4 \frac{2}{12}"$ (= 60)</p> <p>cao</p> <p>(dep on P3) for a correct explanation, ft (a) for the critical ingredient identified</p> <p>Acceptable examples No, since flour is the critical value No, since flour gives you the least number of batches No since she needs more flour to make more biscuits.</p> <p>Not acceptable examples Yes ... No (no reason given) No, since we would need more of the other ingredients too</p>	

Paper: 1MA1/1F																		
Question	Answer	Mark	Mark scheme	Additional guidance														
18	Line Drawn	B3 (B2) (B1)	<p>for a correct line drawn between $x = -2$ and $x = 3$</p> <p>for a correct straight-line segment through at least 3 of $(-2, -6), (-1, -4), (0, -2), (1, 0), (2, 2), (3, 4)$</p> <p>or for all of the above points plotted but not joined</p> <p>or for a single line drawn with a positive gradient through $(0, -2)$ and clear intention to use a gradient of 2, eg a line through $(0, -2)$ and $(0.5, 0)$</p> <p>for at least 2 correct points stated or plotted</p> <p>or a single line drawn with positive gradient through $(0, -2)$</p> <p>or a single line with gradient 2)</p>	<p>Accept freehand line drawn</p> <p>Ignore any incorrect points</p> <p>Table of values</p> <table border="1"> <tr> <td>x</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>y</td> <td>-6</td> <td>-4</td> <td>-2</td> <td>0</td> <td>2</td> <td>4</td> </tr> </table> <p>Ignore any incorrect points</p> <p>Coordinates may be in a table or working</p> <p>Do not accept $y = -2$ drawn</p>	x	-2	-1	0	1	2	3	y	-6	-4	-2	0	2	4
x	-2	-1	0	1	2	3												
y	-6	-4	-2	0	2	4												
19	30	M1 M1 A1	<p>for $80 - 56 (= 24)$ or for $\frac{56}{80} \times 100 (=70)$</p> <p>or (loss of) $10\% = 80 \div 10 (= 8)$</p> <p>for a complete method, eg “24” $\div 80 \times 100$ or $100 - “70”$ or $(80 - 56) \div “8” \times 10$</p> <p>cao</p>															

Paper: 1MA1/1F																
Question	Answer	Mark	Mark scheme	Additional guidance												
20 (a)	15.414	M1	for a complete method with relative place value correct including an intention to add all the appropriate elements of the calculation eg, 2 lines of the 1st method, internal numbers of grids, or complete structure shown of partitioning methods.	14680 734 15414  <table border="1" data-bbox="1579 638 2011 742"> <tr> <td></td> <td>300</td> <td>60</td> <td>7</td> </tr> <tr> <td>40</td> <td>12000</td> <td>2400</td> <td>280</td> </tr> <tr> <td>2</td> <td>600</td> <td>120</td> <td>14</td> </tr> </table> $12000 + 2400 + 280 + 600 + 120 + 14 = 15414$		300	60	7	40	12000	2400	280	2	600	120	14
			300	60	7											
		40	12000	2400	280											
2	600	120	14													
A1	for digits 15414															
		A1	(ft) dep on M1 for correct placement of the decimal point into their final answer													
(b)	37.4	M1	for a start to a method, eg $598.4 \div 16$ (or $59.84 \div 1.6$) = 3 (as a first digit)													
		A1	for digits 374													
		A1	(ft) dep on M1 for correct placement of the decimal point into their final answer	A start to a repeated subtraction method or build-up method is acceptable if a correct first digit of 3 is found												

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
21	Venn Diagram	C1 C1 C1	for one correct region for two correct regions for all regions correct	 <p>Ignore all entries except the region you are marking for each mark</p>
22	$1\frac{8}{15}$	M2 (M1 A1	<p>for a complete method, eg $4 - 2 + \frac{3}{15} - \frac{10}{15}$ condoning error with one numerator or for $\frac{21}{5} - \frac{8}{3} = \frac{63}{15} - \frac{40}{15} (= \frac{23}{15})$ with no more than one error</p> <p>for finding two fractions with a correct common denominator, with at least one correct corresponding numerator, eg $\frac{3}{15}, \frac{10}{15}$ or for converting both to improper fractions, eg $\frac{21}{5}, \frac{8}{3}$)</p> <p>$1\frac{8}{15}$ oe</p>	<p>At least one improper fraction must be correct</p> <p>Any equivalents must be a mixed number</p>

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
25	12	P1 P1 A1	<p>for a process to find the area of cross section, eg $750 \div 25 (= 30)$ oe or $\frac{1}{2} \times 5 \times h$ oe</p> <p>for a correct equation in h, eg $750 \div 25 = \frac{1}{2} \times 5 \times h$ oe or $\frac{1}{2} \times 5 \times h \times 25 = 750$ oe or for a complete process to find h, eg. $\frac{750}{25} \times \frac{2}{5}$ oe or “30” $\times 2 \div 5$</p> <p>cao</p> <p>SC B1 for answer of 6 if P0 scored</p>	May use any letter for h or may use ?
26	Shown	M1 M1 M1 A1	<p>for a correct expression for the area of one face of the cube, eg. x^2 or a correct expression for the surface area of the cube, eg $6 \times x^2$</p> <p>for a correct expression for the surface area of the sphere, eg $4 \times \pi \times 3^2 (= 36\pi)$</p> <p>for forming a suitable equation, eg $6 \times x^2 = 4 \times \pi \times 3^2$ or $6x^2 = “36\pi”$</p> <p>for completing the method to $x = \sqrt{6\pi}$ or $k = 6$</p>	<p>No marks for $x = \sqrt{6\pi}$ without any working.</p> <p>$6 \times x^2 = 4 \times \pi \times 3^2$ $x^2 = 36\pi \div 6$ $x = \sqrt{6\pi}$</p>
27	7.15 and 7.25	B1 B1	<p>for 7.15 as the lower bound</p> <p>for 7.25 as the upper bound</p>	Accept 7.249 oe or 7.2499... oe
28 (i)	-4	B1	cao	
(ii)	(0, 3)	B1	cao	

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

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

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

Angles: $\pm 5^\circ$

Measurements of length: ± 5 mm

PAPER: 1MA1_1F			
Question		Modification	Mark scheme notes
2		Wording added 'Write the following six numbers...'	Standard mark scheme
6	(a)	Wording added 'Look at the diagram for Question 6(a) in the Diagram Booklet. It shows a quadrilateral labelled <i>ABCD</i> .' Wording added ' <i>AB</i> is parallel to <i>DC</i> .'; Wording 'this...' removed and replaced with 'the...' Diagram enlarged. Diagram labelled as <i>ABCD</i> .	Standard mark scheme
6	(b)	Wording added 'Look at the diagram for Question 6(b) in the Diagram Booklet. You may be provided with a model. They show a 3-D shape.' Wording 'this...' removed and replaced with 'the..' Diagram enlarged. Dashed line made longer and thicker. Model may be provided.	Standard mark scheme
8		Wording 'Look at the diagram for Question 8 in the Diagram Booklet. It shows a bar chart.' Wording 'below...' removed and replaced with 'in the Diagram Booklet...' Table and diagram enlarged. Axes labels moved to the left of the horizontal axis and above the vertical axis. Shading changed to dotted shading. Open headed arrows. Wording 'this...' removed and replaced with 'the..'	Standard mark scheme

PAPER: 1MA1_1F

Question		Modification	Mark scheme notes
11		Wording ‘Look at the diagram for Question 11 in the Diagram Booklet.’ Wording ‘The pictogram shows...’ removed and replaced with ‘It is an incomplete pictogram which shows information...’; Diagram enlarged. Key moved above the diagram. Part (c) Wording added ‘Complete the pictogram in the Diagram Booklet...’; for Braille provide a spare diagram and drawing film.	Standard mark scheme
13	(a)	Wording added ‘A number sequence starts with the three numbers shown below.’	Standard mark scheme
13	(b)	The wording ‘Here are...’ removed and replaced with ‘Below are...’ Braille: “Here are” removed. Sentence changed to: “The first four terms of the sequence of triangle numbers are given below.”	Standard mark scheme
15	(a)	a changed to p . d changed to q .	Standard mark scheme except for the letter changes indicated to give $2p + 2q$
16		Wording added ‘Look at the diagram for Question 16 in the Diagram Booklet. It shows a kite $ABCD$.’ And for Braille: “The diagram shows a kite, $ABCD$.” Wording ‘ $ABCD$ is a kite’ removed. Diagram enlarged. Part (b): Wording added ‘Find the value of x , when $AD = 3AB$. The kite has a perimeter of 64 cm.’	Standard mark scheme
17		Wording added ‘Look at the information for Question 17 in the Diagram Booklet. It shows a recipe.’ Wording ‘this recipe’ removed and replaced with ‘the recipe in the Diagram Booklet.’ Information enlarged. Tracking lines added.	Standard mark scheme

PAPER: 1MA1_1F

Question	Modification	Mark scheme notes
18	<p>Wording added ‘Look at the diagram for Question 18 in the Diagram Booklet. It shows a grid.’ Wording ‘below’ removed. Diagram enlarged. Open headed arrows. Grid cut at $y=6$. Axes labels moved to the right of the horizontal axis and above the vertical axis. Braille: x y Words added: ‘You may use the table if you wish...’ – 2 (i) Answer lines added: ‘Ans: (i) __ (ii) __ (iii) __ (iv) __ (v) __ (vi) __’ – 1 (ii) Diagram enlarged to a 2 cm grid cut at $y=6$. 0 (iii) Spare diagram provided. 14 round bumpons and Wikki Stix. 1 (iv) 2 (v) 3 (vi)</p>	Standard mark scheme
21	<p>Wording added ‘Look at the diagram for Question 21 in the Diagram Booklet. It shows an incomplete Venn diagram.’ Wording added ‘in the Diagram Booklet...’. Diagram enlarged. Labels ‘Set A’ and ‘Set B’ moved above the circles. Braille: In the diagram, add (i) for universal set, (ii) for Set A, (iii) for the overlap & (iv) for Set B. Then add ‘Ans: (i) __ (ii) __ (iii) __ (iv) __’</p>	Standard mark scheme
24	<p>Wording added ‘Look at the information for Question 24 in the Diagram Booklet.’ Information enlarged.</p>	Standard mark scheme

PAPER: 1MA1_1F

Question	Modification	Mark scheme notes
25	<p>Wording ‘Look at Diagram 1 and Diagram 2 for Question 25 in the Diagram Booklet. You may be provided with a model.’</p> <p>The triangle labelled ABC.</p> <p>Diagram 1 to show the 3D prism. Diagram 2 to show the cross-section ABC.</p> <p>Wording added ‘Diagram 1 and the model show a prism’.</p> <p>Wording added ‘The cross section of the prism shown in Diagram 2 is a right-angled triangle labelled ABC.’</p> <p>Wording added ‘Angle ABC is a right angle. The base of the triangle, $BC = 5$ cm.’</p> <p>Diagram enlarged. Right angle made more obvious. Dashed lines made longer and thicker.</p> <p>Model could be provided candidates.</p>	Standard mark scheme
26	<p>Model of the cube and sphere provided for all candidates.</p> <p>Wording added ‘Look at Diagram 1, Diagram 2 and the formula for Question 26 in the Diagram Booklet. You may be provided with two models.’</p> <p>Wording ‘The diagram shows...’ removed and replaced with ‘Diagram 1 and Model A show a cube with edges of length x cm.’</p> <p>Wording added ‘Diagram 2 and Model B show a sphere of radius 3 cm.’</p> <p>Diagrams enlarged and stacked vertically. Dashed lines made longer and thicker.</p> <p>The ‘3 cm’ label and arrow moved to the left on the sphere diagram.</p> <p>Formula moved above the surface area diagram. Open headed arrows.</p>	Standard mark scheme



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Mark Scheme (Results)

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In Mathematics (1MA1)
Foundation (Calculator) Paper 2F

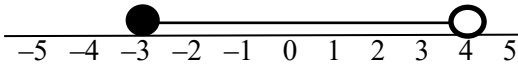
Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
1	$\frac{31}{100}$ oe	B1	for $\frac{31}{100}$ or any equivalent fraction	Ignore any attempt at simplification of $\frac{31}{100}$
2	300	B1	cao	
3	0.12, 0.21, 1.02, 1.20	B1	accept 1.20, 1.02, 0.21, 0.12	
4 (a)	4m	B1	cao	
(b)	3p	B1	cao	
5	7cm by 4cm rectangle drawn	M1 A1	for a rectangle drawn with one correct dimension or $35 \div 5 (=7)$ and $20 \div 5 (=4)$ for a fully correct 7cm by 4cm rectangle drawn	Correct calculations/measurements seen the method mark can be awarded even if the drawing is incorrect or not present Accept any orientation of a correct rectangle
6 (a)	25	B1	cao	
(b)	24	B1	cao	
7	780	P1 P1 A1	for $2500 - 940 (= 1560)$ or $2500 \div 2 (=1250)$ and $940 \div 2 (=470)$ for “1560” $\div 2$ or “1250” – “470” cao	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
8	7	P1 P1 A1	for $6 + 4 + 5 + 8 + 7 + 5 (= 35)$ for “35” $\div 5$ cao	Working may be seen on the diagram Allow one error in the 6 readings; intention to add must be clear.
9	Explanation	C1	for explanation, Acceptable examples Answer should be 14 Should work out 3×4 first Alec should times first instead of adding Not used BIDMAS/BODMAS BIDMAS/BODMAS He has done it in the wrong order Alec needs to use brackets so $2 + (3 \times 4)$ Because you always do multiplication or division first Not acceptable examples Because the answer is wrong It is $2 + (3 \times 4) = 15$ It needs brackets Because working out should only be one sum	
10	$\frac{17}{30}$	B1	for $\frac{17}{30}$ or any equivalent fraction	
11	Reflection	M1 A1	for a correct reflection of the shape in any horizontal line other than the given mirror line for a fully correct reflection	Allow free hand drawing

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
12 (a)	1.844977205	M1	for 3.403(940887) or 3.717(526059) or 2.014(944168) or 1.84(...) or 1.8(...)	Accept consistent use of a comma to indicate a decimal point Answer must be given to at least 3 decimal places rounded or truncated
		A1	for 1.844(977205)	
	(b)	1.84	B1	
13 (i)	21	M1	for $180 - 75 - 84$	Angle may be indicated on the diagram
		A1	cao	
(ii)	Reason given	C1	for reason that <u>Angles</u> on a <u>straight line</u> add up to 180	The key words underlined must be present There should be no incorrect reasons given
14 (a)	15	B1	14 to 16	May be seen using a complete build up method for "45" allow 44 to 46 ft for accuracy Condone use of mixed rates eg $75 \times 7 + 16 = 541$
		(b)	540	
		A1	for 540 or ft (a)	
15	$\frac{4}{9}, \frac{3}{5}, \frac{5}{8}, \frac{2}{3}$	M1	converts into decimals or percentages or equivalent fractions, at least 2 conversions correct or for any 3 fractions in correct order	0.44(...), 0.6, 0.625, 0.66(...) Accept in reverse order for this mark Accept expressed in equivalent decimals or percentages or fractions or in mixed numerical form
		A1	for $\frac{4}{9}, \frac{3}{5}, \frac{5}{8}, \frac{2}{3}$	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
16 (a)	120	M1	for sensible use of proportion eg $\frac{135}{90} (= 1.5)$ or $\frac{90}{135} (= \frac{2}{3})$ or $135 \times 4 (= 540)$ or $135 \div 9 (=15)$ or $80 \div 90 (= 0.888\dots)$	ie $135 \div 9$ but not $135 \div 10$ without $80 \div 9$
		M1	for a complete method eg $80 \times "1.5"$ or $80 \div "\frac{2}{3}"$ or $"540" \times \frac{80}{360}$ or $"15" \times 8$ or $"0.888\dots" \times 135$	
		A1	cao	
(b)	$\frac{50}{540}$	M1	for method to find total number of cars, eg $135 \times \frac{360}{90} (= 540)$ or for $\frac{50}{135} \times \frac{1}{4}$ oe or begins to work with probability by using a numerator of 50 eg $\frac{50}{a}$ where a >50 and an integer	
		A1	for $\frac{50}{540}$ oe ft "540" from part (a)	Accept any equivalent fraction, decimal form 0.09(25..) or percentage form 9(.25..)%

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
17	7 22 15 38 29 9	C1 M1 M1 M1 A1	for correctly placing one of the given values in the diagram eg 38 women or 15 men email for 60 – 38 (=22) or 22 (men) correctly placed in the diagram or 60 – 38 – 15 (=7) or 7 (men texting) correctly placed in the diagram for a method to find 60% of 60, eg. $60 \times 0.6 (= 36)$ for calculating with 60% of 60 eg “36” – (“22” – 15) (= 29) or “36” – “7” (=29) or $(60 - “36”) - 15 (= 9)$ for a fully correct frequency diagram	May be implied by the total number of texts in the frequency diagram being 36 9 or 29 on the diagram (women branch) gets the two M marks for finding and calculating with 60% of 60 If probabilities used instead of frequencies then maximum of C1M1M1M1A0 can be awarded
18	13	P1 P1 A1	for at least two of $3 \times 5 (=15)$ or $2.5 \times 8 (=20)$ or $1.5 \times 14 (=21)$ or $1 \times 10 (=10)$ or for $3 \times 5 + 2.5 \times 8 + 1.5 \times 14 + 1 \times 10 (=66)$ for process to find length of all 2m planks, eg. $92 - (3 \times 5 + 2.5 \times 8 + 1.5 \times 14 + 1 \times 10) (= 26)$ or $92 - “15” - “20” - “21” - “10” (= 26)$ cao	Note 66 on its own will score this mark If no calculations are seen for products allow one error in “15”, “20”, “21”, “10” 13 in the correct place in the table should be accepted as the final answer
19	No (supported)	P1 P1 P1 C1	for a process to find Rachel’s share, eg $600 \div 5 \times 2 (= 240)$ for process to find Samina’s share eg $(600 - “240”) \div 4 (= 90)$ for a process to find either of Tom’s share, eg $600 - “240” - “90” (= 270)$ or $3 \times “90” (=270)$ or $600 \div 3 (= 200)$ for comparison purposes for “No” and accurate figures eg 270 and 200 or 270 and 70 (difference)	Note This mark, if awarded for 200, may be the only mark awarded “No” may be implied by a statement Answer only with no working, no marks

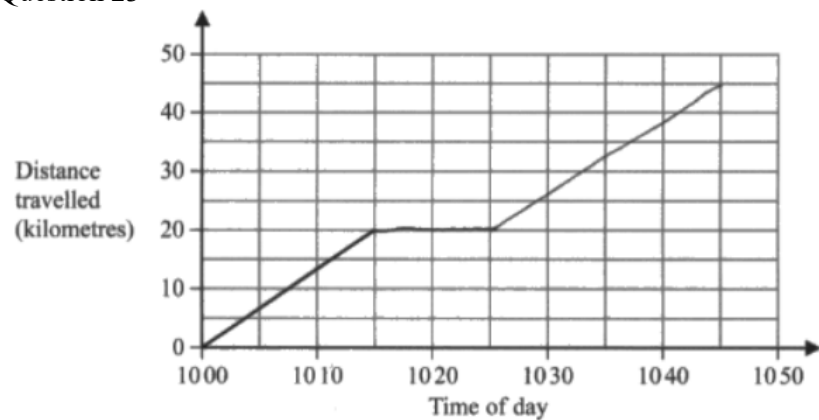
Paper: 1MA1/2F					
Question	Answer	Mark	Mark scheme	Additional guidance	
20 (a)	c^3	B1	cao		
(b)	d^{12}	B1	cao		
21 (a)	$x > -1$	B1	cao		
(b)	Diagram drawn	C2	for a fully correct diagram, eg 		
		(C1	for drawing a line from -3 to 4 or (indep) for an open circle at 4 or (indep) for a closed circle at -3)	Condone arrow heads or line ending to denote the 'end' of the line	
22 (a)	12	M1	for a correct factor tree for either 60 or 84 with no more than one arithmetic error or for listing factors of 60 or 84, at least 4 correct for either (with no more than 1 incorrect in either list), could be in factor pairs or for the prime factors of 60 (2, 2, 3, 5) or 84 (2, 2, 3, 7)	Condone the use of 1 in any factor tree 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60 84: 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84	
		A1	for 12 or $2 \times 2 \times 3$ oe SC B1 for answer of 4 or 6, if M0 scored	2,2,3 is not enough, it must be a product	
(b)	120	M1	for a correct factor tree for either 24 or 40 with no more than one arithmetic error or for at least 3 multiples of both 24 and 40 (can include 24 and 40) or for the prime factors of either 24 (2, 2, 2, 3) or 40 (2, 2, 2, 5) or for a common multiple from their lists ($\neq 120$)	Condone the use of 1 in any factor tree 24: 24, 48, 72, 96, 120, ... 40: 40, 80, 120, ... For the list not containing 120, accept the first 3 correct multiples or one error in the first 4 multiples	
		A1	for 120 or $2 \times 2 \times 2 \times 3 \times 5$ oe		

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
23 (a)	80	M1	for a complete method eg $\frac{20}{15} \times 60$ or 20×4 or $20 \div \frac{1}{4}$	Can be implied by a distance of 25km drawn on the graph
		A1	cao	
(b)	Travel graph	M1	for method to find distance travelled in last 20 minutes, eg $75 \times \frac{20}{60}$ (= 25)	
		C2	for a fully correct travel graph	
		(C1	for horizontal straight line from (10 15, 20) to (10 25, 20) or for a line of the correct length and gradient to indicate a speed of 75km/h eg straight line from (10 25, 20) to (10 45, 45))	
24 (a)	(10), 5, (2), 1, 2, (5), 10	B2	for all 4 values correct	Accept a freehand curve drawn that is not made of line segments If answers stated as coordinates, award M1 for both coordinates and M0 for one coordinate
		(B1	for 2 or 3 correct values)	
(b)	Graph	M1	ft (dep on B1) for plotting at least 5 of their points correctly	
		A1	for a fully correct curve drawn	
(c)	-0.65 to -0.8 and 2.65 to 2.8	M1	for $y = 4$ drawn or intersection with $y = 4$ or $y = x^2 - 2x - 2$ drawn or 1 correct value (ft a quadratic)	
		A1	ft a quadratic graph or for answers in the range 2.65 to 2.8 and -0.65 to -0.8	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
25	41.6	P1	for start of process to find the length of the hypotenuse, eg $(\text{hyp}^2 =) 8^2 + 10^2 (= 164)$	Note lengths may be seen on the diagram
		P1	for complete process to find hypotenuse, eg $\sqrt{8^2 + 10^2}$ or $\sqrt{64+100}$ or $2\sqrt{41}$ or $\sqrt{164}$ (= 12.8...)	
		P1	(dep P2) for complete process to find the required perimeter, eg $8 + 8 + 10 + "12.8" + "12.8 - 10"$ or $16 + 4\sqrt{41}$	$8 + 8 + "12.8" + "12.8"$ oe is acceptable for this mark
		A1	for answer in the range 41 to 42	If an answer in the range 41 to 42 is given in the working space then incorrectly rounded, award full marks.
26 (a)	17.8	M1	for $\tan 56 = \frac{x}{12}$ or $(BC) = 12 \times \tan 56$ oe or alternative method to find BC	For any alternative method candidates must arrive at an equation with BC as the only unknown
		A1	for an answer in the range 17.7 to 17.8	If an answer in the range 17.7 to 17.8 is given in the working space then incorrectly rounded, award full marks.
(b)	33.6	M1	for $\cos x = \frac{15}{18}$ or $\cos x = 0.83..$ or $x = \cos^{-1} \frac{15}{18}$ or alternative method to find x	For any alternative method candidates must arrive at an equation with x as the only unknown
		A1	for an answer in the range 33.5 to 33.91	If an answer in the range 33.5 to 33.91 is given in the working space then incorrectly rounded, award full marks.

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
27	-2, 9	M1 M1 A1	for $(x \pm 2)(x \pm 9)$ or for $(x + a)(x + b)$ where either $ab = -18$ or $a + b = -7$ or one correct answer for $(x + 2)(x - 9)$ cao	Sight of one correct answer as the final answer can gain one mark with or without working
28	320 000	M1 A1	for a complete method eg $272\ 000 \div \left(\frac{100-15}{100}\right)$ cao	

Question 23



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.

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

Angles: $\pm 5^\circ$

Measurements of length: ± 5 mm

PAPER: 1MA1_2F		
Question	Modification	Mark scheme notes
3	Wording added 'Write the following four numbers...'	Standard mark scheme
5	Wording added 'Look at the diagram and the grid for Question 5 in the Diagram Booklet.' Wording added 'The diagram shows a rectangle with length 35 metres and width 20 metres.' Diagram enlarged. Wording 'On the centimetre grid below...' removed and replaced with 'On the grid in the Diagram Booklet, draw an accurate scale drawing of the rectangle.' Wording 'Use a scale of 1 cm...' removed and replaced with 'Use a scale of 1 square length on the grid represents 5 metres.' Braille has chosen to use some alternative wording: 'The diagram shows a rectangle and a grid of squares. The rectangle has a length of 35 m and a width of 20 m. Each square on the grid represents a one centimetre square.'; 'Use a scale of 1 cm to represent 5 m'; a spare diagram is also provided, with Wikki Stix and drawing film,	Standard mark scheme
6	Wording added 'Below is a list of ten whole numbers.' For Braille this is: 'Look at the list of ten whole numbers from 21 to 30 shown below.'	Standard mark scheme
8	Wording added 'Look at the diagram for Question 8 in the Diagram Booklet. It shows a vertical line graph.' The number 5 changed to the word 'five'. Diagram enlarged. The graph lines made slightly thicker. Right axis labelled. Axes labels moved to the top of the vertical axis and to the left of the horizontal axis.	Standard mark scheme

PAPER: 1MA1_2F

Question	Modification	Mark scheme notes
11	<p>Wording added ‘Look at the diagram for Question 11 in the Diagram Booklet. It shows shape A on a grid.’ The shape of the triangle changed to a 2×2 right-angled triangle. Diagram enlarged. Shading changed to dotted shading. ‘mirror line’ labelled on both sides of the diagram. A shape may be provided. Wording added ‘A cut out shape may be available if you wish to use it.’</p>	Standard mark scheme
13	<p>Wording added ‘Look at the diagram for Question 13 in the Diagram Booklet. It shows the straight line RST.’ For Braille the levels U and V have been added to the ends of the unmarked lines. Wording added ‘The angles x°, 75° and 84° are marked on the straight line.’ Diagram enlarged. Angles moved outside of the angle arcs and the angle arcs made smaller. Also for Braille: ‘In the diagram, angle $VST = 84^\circ$ angle $VSU = 75^\circ$ angle $USR = x^\circ$’</p>	Standard mark scheme
14	<p>Wording added ‘Look at the diagram for Question 14 in the Diagram Booklet. Nazima uses the graph...’. Diagram enlarged. Right axis labelled. Small squares removed. Open headed arrows. Axes labels moved to the top of the vertical axis and to the left of the horizontal axis.</p>	Standard mark scheme
15	Wording added ‘Write the following four fractions...’.	Standard mark scheme
16	<p>Wording added ‘Look at the diagram for Question 16 in the diagram book. It shows a pie chart which gives...’. Wording added ‘There are black cars, white cars and cars in other colours.’ Diagram enlarged. Right angle made more obvious. Angle moved outside of the angle arc and the angle arc made smaller. Also for Braille: ‘The black sector makes a right angle at the centre. The white sector makes an angle of 80° at the centre.’</p>	Standard mark scheme

PAPER: 1MA1_2F

Question		Modification	Mark scheme notes
17		<p>Wording added ‘Look at the diagram for Question 17 in the Diagram Booklet. It shows an incomplete frequency tree.’</p> <p>Wording added ‘Complete the frequency tree in the Diagram Booklet for this information. There are six spaces to fill.’</p> <p>Diagram enlarged. The labels moved above the circles.</p> <p>Braille: Alternative sentence “The diagram shows an incomplete frequency tree.”</p> <p>Letters added: (i), (ii), (iii), (iv), (v) & (vi) in the blank spaces.</p> <p>‘Ans: (i) __ (ii) __ (iii) __ (iv) __ (v) __ (vi) __’</p>	Standard mark scheme.
18		<p>Wording added ‘Look at the incomplete table for Question 18 in the Diagram Booklet. It gives...’.</p> <p>The ‘Number of planks’ column widened if candidate wants to use it for working out space.</p> <p>Table enlarged.</p> <p>Braille: Alternative wording “The incomplete table below gives...”</p> <p>Letters added: (i) in the blank space on the table. ‘Ans: (i) __ planks’</p>	Standard mark scheme
20	(a)	The letter c changed to p .	Standard mark scheme but note change of letter
20	(b)	The letter d changed to q .	Standard mark scheme but note change of letter
21	(a)	<p>Wording added ‘Look at the diagram for Question 21(a) in the Diagram Booklet. It shows a number line.’</p> <p>Wording ‘shown on this number line’ removed and replaced with ‘shown on the number line.’</p> <p>Diagram enlarged. The scale cut at -3, but -3 still marked.</p> <p>Axis label moved to the right. Scale markings moved above and below.</p> <p>Open headed arrows and shortened at the end of the scale.</p>	Standard mark scheme

PAPER: 1MA1_2F

Question		Modification	Mark scheme notes
21	(b)	<p>Wording added 'Look at the diagram for Question 21(b) in the Diagram Booklet. It shows a blank number line.'</p> <p>Diagram enlarged. The scale cut at -4, but -4 still marked.</p> <p>Open headed arrow and shortened at the end of the scale.</p> <p>Axis label moved to the right. Scale markings moved above and below.</p> <p>Braille: a spare diagram is provided with 4 round bumpons, 4 square bumpons, Wikki Stix and drawing film.</p>	Standard mark scheme
23		<p>Wording added 'Look at the diagram for Question 23 in the Diagram Booklet.'</p> <p>Wording added 'The travel graph for the first 15 minutes of his journey is shown in the Diagram Booklet.'</p> <p>Diagram enlarged. Right axis labelled. Open headed arrows.</p> <p>Axes labels moved to the top of the vertical axis and to the left of the horizontal axis.</p> <p>In (b) Wording added 'On the grid in the Diagram Booklet,...'.</p> <p>Braille: time shown with colons.</p> <p>Braille alternative wording: 'The diagram shows an incomplete travel graph for Sam's car journey.' 'The first 15 minutes of his journey is represented on the graph.'</p> <p>In part (b) for Braille a spare diagram is provided with 6 round bumpons and Wikki Stix.</p>	Standard mark scheme
24	(a)	<p>Table enlarged and turned vertical. Wording added 'There are four spaces to fill.'</p> <p>Braille: In the table (i), (ii), (iii), & (iv) in the blank spaces, then 'Ans: (i) __ (ii) __ (iii) __ (iv) __'</p>	Standard mark scheme
24	(b)	<p>Wording added 'Look at the diagram for Question 24(b) in the Diagram booklet. It shows a grid.'</p> <p>Diagram enlarged. Small squares removed. Open headed arrows.</p> <p>Axes labels moved to the top of the vertical axis and to the right of the horizontal axis.</p> <p>Braille: a spare diagram is provided with 16 round bumpons and Wikki Stix.</p>	Standard mark scheme but in part (c) answers in the ranges 2.6 to 2.9 and -0.6 to -0.9

PAPER: 1MA1_2F

Question		Modification	Mark scheme notes
25		<p>Wording added ‘Look at Diagram 1 and Diagram 2 for Question 25 in the Diagram Booklet. Diagram 1 shows a right-angled triangle labelled shape A with a base length of 10 mm and a vertical height of 8 mm.’</p> <p>Diagrams enlarged. Right angles made more obvious.</p> <p>Wording added ‘Diagram 2 is a shaded shape made from two shape A triangles.’</p> <p>‘shape A’ wording added inside the triangles.</p> <p>Wording ‘Work out the perimeter of the shaded shape in Diagram 2.’</p>	Standard mark scheme
26	(a)	<p>Wording added ‘Look at the diagram for Question 26(a) in the Diagram Booklet. It shows a right-angled triangle, ABC.’</p> <p>Wording added: ‘$AC = 12$ cm, Angle $BAC = 56^\circ$, Angle CAB is a right angle.’</p> <p>Diagram enlarged. Right angle made more obvious.</p> <p>Angle moved outside of the angle arc and the angle arc made smaller.</p>	Standard mark scheme
26	(b)	<p>Wording added ‘Look at the diagram for Question 26(b) in the Diagram Booklet. It shows a right-angled triangle, PQR.’</p> <p>Wording added: ‘$PR = 18$ cm, $RQ = 15$ cm , Angle PQR is a right angle , Angle PRQ is marked x’</p> <p>Diagram enlarged. Right angle made more obvious.</p> <p>Angle moved outside of the angle arc and the angle arc made smaller.</p>	Standard mark scheme



Pearson
Edexcel

Mark Scheme (Results)

November 2021

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

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
1	0.45	B1	cao	
2	2 factors	B1	at least 2 of 1,5,7,35	No incorrect factors
3	10 45	B1	for 10 45	Accept any time notation
4	11	B1	cao	
5	Midpoint marked	B1	within tolerance	
6 (a)	$4ab$	B1		May be seen in working. Accept if no ambiguity.
(b)	$3x + 8$	M1	for method to collect terms eg $3x$ or 8	
		A1	for $3x + 8$	
7	EJ, EK, FJ, FK, GJ, GK	B2 (B1)	fully correct list with no repeat for at least 4 correct)	Allow letters in either order
8	2540 shown	M1 M1 A1	for finding the cost of one item eg $2 \times 600 (=1200)$ or $7 \times 120 (=840)$ or $2 \times 250 (=500)$ full process eg “1200” + “840” + “500” (=2540) or 2500 – “1200” – “840” – “500” (= ±40) for 2540 or ±40	Ignore written statements as long as the correct figures are shown

Paper: 1MA1/3F																
Question	Answer	Mark	Mark scheme	Additional guidance												
9	<table style="border-collapse: collapse; margin: auto;"> <tr> <td style="padding: 0 5px;">4</td> <td style="padding: 0 5px;">5</td> <td style="padding: 0 5px;">23</td> <td style="padding: 0 5px;">32</td> </tr> <tr> <td style="padding: 0 5px;">8</td> <td style="padding: 0 5px;">9</td> <td style="padding: 0 5px;">7</td> <td style="padding: 0 5px;">24</td> </tr> <tr> <td style="padding: 0 5px;">12</td> <td style="padding: 0 5px;">14</td> <td style="padding: 0 5px;">30</td> <td style="padding: 0 5px;">56</td> </tr> </table>	4	5	23	32	8	9	7	24	12	14	30	56	B3 (B2) (B1)	for a fully correct table for at least 7 figures correctly placed) for the given values correctly placed in the table or one correct row or column)	Given values in bold Given values: 5, 32, 8, 12, 14, 56
4	5	23	32													
8	9	7	24													
12	14	30	56													
10	61	P1 A1 A1	for $300 \div 4.85 (= 61.8\dots)$ for 61.8... or 62 61	This mark may be awarded for build-up methods that get to figures that are before or after 300 Embedded answers get -1 mark.												
11 (a)	3 hrs 16 mins	P1 A1	$196 - 60 - 60 - 60 (=16)$ oe or $196 \div 60 (= 3.26\dots$ or $3.27\dots)$ or states 3 hours in their answer (with an incorrect number of minutes or minutes left blank) 3 hours 16 minutes													
(b)	$\frac{x}{2}$	B1	$\frac{x}{2}$ oe													
12 (a)	50	M1 A1	$[2.5] \times 20 (=50)$ for an answer in the range 46 to 54	[2.5] a number in the range 2.3 to 2.7 or identified as the distance from Shelton to Trilby												
(b)	60	M1 A1	$5 \times 1200 (=6000)$ or $1200 \div 100 (=12)$ or conversion $5 \div 100 (=0.05)$ cao													

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
13 (a)	40	M1	$2 \div (2+3) \times 100 (=40)$ or build up to (and shows) 40:60 oe or for sight of $\frac{2}{5}$ oe or $100 \div 5 (=20)$	Accept any equivalent ratio; award full marks if an acceptable ratio is given and then incorrectly simplified.
		A1	cao	
(b)	20 : 80	M1	$100 - 20 (=80)$ or $80 : 20$ oe	
		A1	20 : 80 oe	
14	80	P1	for $1 - \frac{13}{15} \left(= \frac{2}{15} \right)$ or $\frac{13}{15} \times 600$ (million) (= 520 (million))	Condone no million or may see 000 000 used* *In this case condone up to two missing 0s for the award of the P marks. For P marks accept $\frac{13}{15}, \frac{2}{15}$ rounded or truncated to no less than 2dp.
		P1	for " $\frac{2}{15}$ " $\times 600$ (million) (= 80 (million)) or $600 - "520"$ (=80) oe	
		A1	Accept 80 000 000	
15	Explanation	C1	for explanation Acceptable examples They do not add to 360 They add to 100 too least It is missing a 100 angle / It needs 100 more Because the total has to be 360 A whole circle is 360 Not acceptable examples They add up to 260 One of the angles is wrong A shape with 4 angles adds up to 360	

Paper: 1MA1/3F					
Question	Answer	Mark	Mark scheme		Additional guidance
16	Enlargement centre (1,1) scale factor 4	B2 (B1)	Enlargement, centre (1,1) and scale factor 4 two of Enlargement, centre (1,1), scale factor 4 with nothing incorrect)		No extras. Accept A as centre. If there is a clear reference to a different transformation award no marks
17	(a) $y^2 + 5y$ (b) $2(2a - 3)$ (c) 2.9 (d) $20e^3f^4$	B1 B1 M1 M1 A1 M1 A1	cao cao for a correct first stage eg. expanding the brackets, $2 \times 5x - 2 \times 4 (= 10x - 8)$ or division of both sides by 2, eg $\frac{2(5x-4)}{2} = \frac{21}{2}$ M1 for isolating terms in x eg $10x = 21 + 8$ A1 oe M1 for any two of $4 \times 5 (=20)$, $e^{2+1} (=e^3)$, $f^{1+3} (=f^4)$ in a product or written as individual terms A1 cao		Do not award if there is contradiction
18	10 000	B1	cao		
19	34 cm ²	P1	for finding one area eg $8 \times 8 (= 64)$ or $0.5 \times 3 \times 5 (=7.5)$	for first stage in working with Pythagoras eg sight of $3^2 + 5^2$ or $9 + 25$	
		P1	for a complete process to find the area eg “64” – $4 \times$ “7.5” (=34)	for full use of Pythagoras eg $\sqrt{3^2 + 5^2}$ or $\sqrt{34}$ or 5.83...	Any figure used must come from a correct process
		A1 B1	for an answer in the range 33.6 to 34 (indep) for cm ²		Can be awarded with incorrect units stated Can be awarded with an incorrect or absent numerical answer

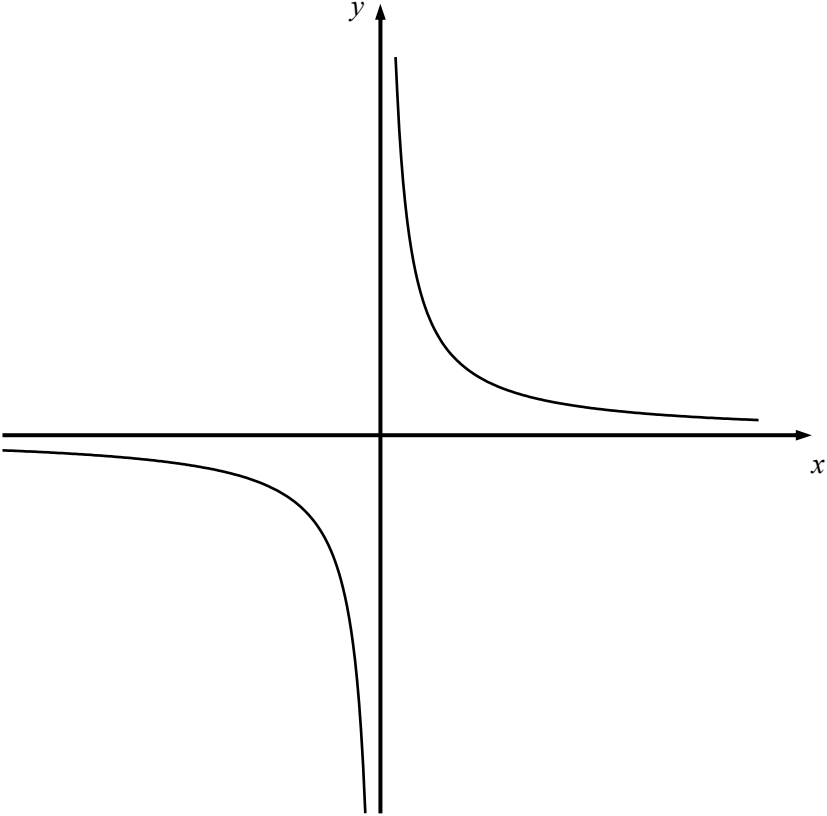
Paper: 1MA1/3F					
Question	Answer		Mark	Mark scheme	Additional guidance
20	1	57899	B2	for a fully correct ordered diagram	Can be in reverse vertical order (with matching leaves) eg 3,2,1 One number in the wrong position is one error.
	2	0224558	(B1)	for a fully correct unordered diagram or for an ordered diagram with one error or omission)	
	3	235			
			B1	(indep) for correct key (units not required but must be correct if stated) eg 2 5 represents 25 (cm)	
21	(a)	(100,18)	B1	cao	
	(b)	12.8 to 14.8	M1	for a method to read off eg line of best fit or line up from 370 or for a point on the grid at (370, y) where y lies between 12.8 and 14.8	
			A1	for an answer in the range 12.8 to 14.8	
	(c)	Decision and statement	C1	for decision and statement Acceptable examples No, as this point can be disregarded from the general trend No, ignore this point No, the correlation is positive No, because even with an outlier you can still have a negative or positive correlation. No, there is still a correlation. No, as you can use the rest of the data to determine a correlation. No, as outlier does not affect the majority No as a line of best fit can still be drawn No, it is an anomaly Not acceptable examples Yes, Outliers can be ignored [no decision] No, the outlier can be ignored so the correlation is negative No there are other things that can affect the test	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
22	12.85 or 12.86 or 13.5(0)	P1 P1 P1 A1	for $9 + 2 + 1 (=12)$ for working out how many lots of 175g are needed eg $6000 \div "12" \times 2 \div 175 (=5.71..)$ for a complete process eg $"5.71..." \times 2.25 (=12.857..)$ for 12.85 or 12.86 or 13.5(0)	Award this mark for sight of 4500, 1000 or 500 Process may lead to 5 or 6 instead of 5.71 "5.71..." (ft) or a figure rounded or truncated eg "6"
23 (a)	450 000	B1	cao	
(b)	7×10^{-3}	B1	cao	
(c)	4.73×10^3	M1 A1	for 4730 oe or for 4.73×10^n where $n \neq 3$ cao	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
24	260	P1	conversion to common units of capacity eg $2.2 \times 4.54 (= 9.988)$ or $8 \div 4.54 (= 1.76\dots)$ OR for company A $2400 \div 4.54 (= 528.63\dots)$ OR $2400 \div 8 (= 300)$ OR a rate per minute $8 \div [\text{time for Company A}] (= 4.8\dots)$ oe	[time for Company A] could be 1 min 40 sec or 1.66... or 1.6 or 1.40 etc as long as it is clear it relates to 1 min 40 sec Results of calculations may be truncated or rounded.
		P1	for a complete process to find the time for one water rate in minutes. eg in litres Company A $2400 \div "4.8\dots" (= 500)$ or $"300" \times [1 \text{ min } 40 \text{ sec}] (= 500)$ or Company B $2400 \div "9.988" (= 240.28\dots)$ OR eg in gallons Company A $"528.63\dots" \div ("1.76\dots" \div [1 \text{ min } 40 \text{ sec}]) (= 500)$ or Company B $"528.63\dots" \div 2.2 (= 240.28\dots)$	
		P1	for complete processes to find the times for both company A and company B in minutes. Company A eg in litres $2400 \div "4.8\dots" (= 500)$ or $"300" \times [1 \text{ min } 40 \text{ sec}] (= 500)$ or in gallons $"528.63\dots" \div ("1.76\dots" \div [1 \text{ min } 40 \text{ sec}]) (= 500)$ AND Company B eg in litres $2400 \div "9.988" (= 240.28\dots)$ or in gallons $"528.63\dots" \div 2.2 (= 240.28\dots)$	
		A1	for an answer in the range 259 to 260	If the answer is given within the range but then rounded incorrectly award full marks.

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
25	12	P1 P1 A1	for a process to find the fifth term eg $3a + 5a (=8a)$ for setting up the equation eg $a + 2a + 3a + 5a + [8a] = 228$ cao	[8a] allow use of what is clearly indicated as the missing term $\frac{228}{19}$ or $\frac{228}{1+2+3+5+8}$ scores P1 P1 $\frac{228}{1+2+3+5+[8]}$ scores P0 P1
26 (a)	0.5, 0.3	P1 A1	for $1 - 0.05 - 0.15 (=0.8)$ oe	Award this mark for any two probabilities that sum to 0.8
(b)	120	M1 A1	$18 \div 0.15$ oe or $6 + 18 + a + b$ where $a + b = 96$ cao	
27	18.3	P1 P1 P1 A1	for finding the area of the triangle eg $0.5 \times 8 \times 8 (=32)$ for finding the area of the circle $\pi \times 8 \times 8 (= 201.06..)$ for finding the area of the sector eg $\frac{1}{4} \times \pi \times 8^2$ or " $201.06..$ " $\div 4 (= 50.26..)$ for an answer in the range 18.2 to 18.3	Accept rounded or truncated figures If the answer is given within the range but then rounded incorrectly award full marks.
28	Sketch	M1 A1	correct shape in one of the required quadrants or correct graph where the lines touch the axes fully correct shape	Lines do not need to extend to the ends of the axes if the intention is clear

Qu 28 Example



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.

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

Angles: $\pm 5^\circ$

Measurements of length: ± 5 mm

PAPER: 1MA1_3F			
Question		Modification	Mark scheme notes
5		Wording added 'Look at the diagram for Question 5 in the Diagram Booklet.' Wording 'AB is a straight line' removed and replaced with 'It shows a straight line AB .' The line made exactly 12 cm. Labels moved above the line. Braille: Wording 'with a cross (\times)' removed, a spare diagram provided with 2 round bumpons and drawing film.	Standard mark scheme but note the change in line length.
6	(a)	Change a to m , b to n .	Standard mark scheme but note the change in letters.
6	(b)	Change x to y .	Standard mark scheme but note the change in letters.
7		Wording added 'In bag A , the three cards have the letters E , F and G written on them.' Wording added 'In bag B , the two cards have the letters J and K written on them.' Braille: diagram removed.	Standard mark scheme

PAPER: 1MA1_3F

Question	Modification	Mark scheme notes																				
8	<p>Wording added ‘Look at the table for Question 8 in the Diagram Booklet. It shows information about prices.’ ; Table enlarged. Braille: Change table to information: “These details are shown below: • Each plane ticket costs 600 dollars • Each night in a hotel costs 120 dollars • Each theme park ticket costs 250 dollars”</p>	Standard mark scheme																				
9	<p>Wording added ‘Look at the two-way table for Question 9 in the Diagram Booklet.’ Wording added ‘in the Diagram Booklet.’ Table enlarged. Wording added ‘There are twelve spaces to fill.’ Braille: Wording added ‘There are seven spaces to fill.’ Diagram amended as shown:</p> <table border="1" data-bbox="331 786 864 967"> <thead> <tr> <th></th> <th>Plastic</th> <th>Not plastic</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>(ii)</td> <td>8</td> <td>12</td> </tr> <tr> <td>Blue</td> <td>5</td> <td>(iii)</td> <td>14</td> </tr> <tr> <td>Black</td> <td>(vii)</td> <td>(vi)</td> <td>(iv)</td> </tr> <tr> <td>Total</td> <td>(i)</td> <td>(v)</td> <td>56</td> </tr> </tbody> </table> <p>In the table, add (i), (ii), (iii), (iv), (v), (vi) & (vii) in the blank spaces. For Braille add “Ans: (i) __ (ii) __ (iii) __ (iv) __ (v) __ (vi) __ (vii) __</p>		Plastic	Not plastic	Total	Red	(ii)	8	12	Blue	5	(iii)	14	Black	(vii)	(vi)	(iv)	Total	(i)	(v)	56	<p>Standard mark scheme for MLP. For Braille: B3 for a fully correct table, or values given: (i) 32 (ii) 4 (iii) 9 (iv) 30 (v) 24 (vi) 7 (vii) 23 B2 for at least 3 figures correctly given) B1 for the value of 32 given for (i) or one correct row or column B2</p>
	Plastic	Not plastic	Total																			
Red	(ii)	8	12																			
Blue	5	(iii)	14																			
Black	(vii)	(vi)	(iv)																			
Total	(i)	(v)	56																			

PAPER: 1MA1_3F

Question	Modification	Mark scheme notes
12	<p>Wording added ‘Look at the diagram for Question 12 in the Diagram Booklet.’</p> <p>Wording ‘The diagram shows...’ removed and replaced with ‘It shows two places, Shelton and Trilby, on a map.’</p> <p>The diagram enlarged $\times 2$ so the distance between Shelton and Trilby will be 5 cm exactly.</p> <p>The scale changed to 1 centimetre represents 10 kilometres.</p> <p>Wording added ‘It has the scale: 1 cm represents 10 kilometres.’</p> <p>Trilby moved to the right of Shelton so that the candidate can measure horizontally.</p> <p>Crosses changed to solid dots. The town names moved above the dots.</p> <p>Scale moved above the diagram. The outside frame made wider.</p>	<p>Standard mark scheme but the M mark in part (a) is now: M1 [5]* $\times 10$ (=50) *accept [5] in the range 4.5 to 5.5 (=45 to 55) For the A mark accept an answer in the range 45 to 55</p>
16	<p>Wording added ‘Look at the diagram for Question 16 in the Diagram Booklet.’</p> <p>Wording ‘Here is...’ removed and replaced with ‘It shows two right-angled triangles on a grid. The triangles are labelled <i>BAC</i> and <i>DAE</i>.’</p> <p>Wording added ‘Point <i>A</i> for each of the triangles is in the same position on the grid.’</p> <p>Wording added ‘Angle <i>BAC</i> and angle <i>DAE</i> are right angles.’</p> <p>Diagram enlarged. Open headed arrows. Shading removed. The grid cut at $x = -1$ and $y = -1$.</p> <p>Axes labels moved to the right of the horizontal axis and above the vertical axis.</p> <p>The wording ‘...that maps triangle <i>ABC</i> onto triangle <i>ADE</i>’ removed and replaced by ‘...that maps triangle <i>BAC</i> onto triangle <i>DAE</i>.’</p>	<p>Standard mark scheme</p>
17	(b) Change <i>a</i> to <i>m</i> .	<p>Standard mark scheme but note the change in letter</p>
17	(d) Change <i>e</i> to <i>p</i> . Change <i>f</i> to <i>q</i> .	<p>Standard mark scheme but note the change in letters</p>

PAPER: 1MA1_3F

Question	Modification	Mark scheme notes
19	<p>Wording added ‘Look at the diagram for Question 19 in the Diagram Booklet.’</p> <p>Wording ‘This diagram shows...’ removed and replaced with ‘It shows two squares, $ABCD$ and $EFGH$.’</p> <p>The larger square labelled $ABCD$ and the shaded square labelled $EFGH$.</p> <p>Wording added ‘The square $EFGH$ is shaded. $EFGH$ is inside $ABCD$.’</p> <p>Wording added: ‘$AE = BF = CG = DH = 3$ cm; $EB = FC = GD = HA = 5$ cm ; All the marked angles are right angles.’</p> <p>Diagram enlarged. Right angles made more obvious. Shading changed.</p>	Standard mark scheme
20	<p>Wording added ‘Look at the diagram for Question 20 in the Diagram Booklet. It shows an incomplete stem and leaf diagram.’</p> <p>Wording ‘Here...’ removed and replaced with ‘Below.’; Wording added ‘in the Diagram Booklet.’</p> <p>Diagram enlarged. Key moved above the diagram. Extra horizontal line added.</p> <p>Braille: Remove “Here are” and change to “The list below shows...”</p> <p>Change “Draw...” to “On your paper, make...” ; No diagram in Braille.</p>	Standard mark scheme
21	<p>Wording added ‘Look at the diagram for Question 21 in the Diagram Booklet. It is a scatter graph which shows...’</p> <p>Diagram enlarged. Open headed arrows. Right axis has been labelled.</p> <p>Axes labels moved to the left of the horizontal axis and above the vertical axis.</p> <p>Crosses changed to solid dots. Small squares removed.</p> <p>Braille: There will be a spare diagram and Wikki Stix</p>	Standard mark scheme but in part (b) use a range of 11 to 13
25	Change a to n .	Standard mark scheme but note the change in letter.
26	<p>Wording added ‘Look at the table for Question 26 in the Diagram Booklet.’</p> <p>Wording added ‘The table in the Diagram Booklet...’; Table enlarged and turned vertical.</p> <p>In part (a) Wording added ‘in the Diagram Booklet.’; Wording added ‘There are two spaces to fill.’</p> <p>Braille: In the table letters (i) & (ii) placed in the blank spaces with an answer line: ‘Ans: (i) __ (ii) __’</p>	Standard mark scheme

PAPER: 1MA1_3F

Question	Modification	Mark scheme notes
27	Wording added 'Look at the diagram for Question 27 in the Diagram Booklet.' Wording 'The diagram shows...' removed and replaced with 'It shows...' Wording added ' $OP = OR = 8$ cm.' Wording added 'The marked angle is a right angle.' Diagram enlarged. Right angle made more obvious. Shading changed.	Standard mark scheme
28	Wording added 'Look at the diagram for Question 28 in the Diagram Booklet. It shows a set of axes.' Wording added 'on the axes in the Diagram Booklet.' Diagram enlarged. Open headed arrows. Axes labels moved to the right of the horizontal axis and above the vertical axis. Braille: there will be a spare diagram, Wikki Stix and drawing film.	Standard mark scheme

