



Pearson
Edexcel

Mark Scheme (Results)

Summer 2019

Pearson Edexcel GCSE (9 – 1)

In Mathematics (1MA1)

Foundation (Non-Calculator) Paper 1F

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Summer 2019

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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 (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 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 E.g. $2 \times 6 (=12)$ 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 E.g. "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 E.g. [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	3	B1	cao	
2	73	B1	cao	
3	80	B1	cao	
4	23 or 29	B1	for 23 or 29	Do not award if any other numbers are included, but award if both 23 and 29 are shown.
5	11	B1	cao	
6	3000	P1 P1 P1 A1	for a correct step for travel or/and spending money eg $4 \times 150 (=600)$ or $4 \times 250 (=1000)$ or $150 + 250 (=400)$ for an appropriate step with the hotel price eg $7 \times 50 (=350)$ or $4 \times 50 (=200)$ for combining at least two “costs” for 4 people for 7 nights eg $4 \times 150 + 4 \times 250 (=1600)$ or $4 \times 150 + 7 \times 4 \times 50 (=2000)$ cao	Can be embedded eg $4 \times 7 \times 150$ Can be $4 \times 7 \times 50$ Must be correct process for two costs eg not $4 \times 150 \times 7$ but may be 2 correct costs and one incorrect

Paper: 1MA1/1F					
Question	Answer	Mark	Mark scheme	Additional guidance	
7	(a)	7	P1	for process to find the number of blue flowers, eg $30 - 8 - 10 - 5$	Allow one error
			A1	cao	
	(b)	white	B1	for white or ft from (a)	Must be seen clearly for ft
8		$\frac{1}{4}, \frac{1}{3}, \frac{1}{2}, \frac{7}{12}, \frac{3}{4}$	M1	converts fractions to a common equivalent form, at least two conversions correct eg fractions with a denominator of 12, decimals or percentages, or any 4 fractions in correct order	0.25, 0.33(...), 0.5, 0.58(...), 0.75 Accept list in reverse order for this mark Accept expressed in equivalent decimals or percentages or any other appropriate form or mixed forms
				A1	
9	(a)	6	M1	for method to find distance, eg $4 \times \text{time difference}$ or 30 mins = 2 miles	10.30 am – 9 am may be seen as 1.5(hr) or 1(hr) 30 (min) or 90 (min) or $\frac{3}{2}$ (hr) or $1\frac{1}{2}$ (hr)
				A1	
	(b)	12 35 pm	M1	for method to add time using consistent units eg 11 20 or 50 + 75 or 2 hours 5 mins	
				A1	
10	(a)	4	B1	cao	Division by 6 must be ALL terms
				B1	
	(b)	8	B1	cao	
				M1	
		3	A1	cao	

Paper: 1MA1/1F													
Question	Answer	Mark	Mark scheme	Additional guidance									
11	4292	M1	for complete method with relative place value correct including addition of all the appropriate elements of the calculation	<p>Working</p> $\begin{array}{r} 592 \\ \underline{3700} \\ 4292 \end{array}$ <table border="1"> <tr> <td></td> <td>70</td> <td>4</td> </tr> <tr> <td>50</td> <td>3500</td> <td>200</td> </tr> <tr> <td>8</td> <td>560</td> <td>32</td> </tr> </table> $3500 + 560 + 200 + 32 = 4292$		70	4	50	3500	200	8	560	32
	70	4											
50	3500	200											
8	560	32											
		A1	cao										

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
12 (a)	40	M1	for using 90, eg $90 - 25 - 25$	90 – 25 is enough for this mark
		A1	cao	
(b)(i)	b or d with reason	B1	for b or d (or both)	A correct answer can be implied by writing 125 immediately next to b or d (or both) as long as 125 is not written next to an incorrect angle. Underlined words need to be shown; reasons need to be linked to their method; any reasons not linked, do not credit. There should be no incorrect reasons given.
		C1	(dep) for appropriate reason(s) vertically <u>opposite angles</u> are equal <u>vertically opposite angles</u> are equal <u>corresponding</u> angles are equal <u>alternate</u> angles are equal <u>angles on a straight line</u> add up to 180	
(ii)	reason	C1	for correct explanation using 360 or a full explanation using angles around a point Acceptable examples Because 360 around a point $360 - 125 = 235$ $125 + 235 = 360$ Because they add to 360 Not acceptable examples Because b is 125	Using 360 appropriately and not in an incorrect setting
13	$10x$	B1	for $10x$ oe	

Paper: 1MA1/1F					
Question	Answer	Mark	Mark scheme	Additional guidance	
14	(a) 14	B1	for 14		
	(b) Explanation	C1	for explanation Acceptable examples she divided by 2 but should have multiplied by 2 there are 96 halves in 48 $48 \times 2 = 96$ Not acceptable examples $24 \times 2 = 48$		
15	(a) 8	B1	cao		
	(b) 125	B1	cao		
16	(a) $10m - 15$	B1	for $10m - 15$ oe	Accept any reversing of order in the expression	
	(b) $3(n + 4)$	B1	for $3(n + 4)$ oe	Accept any answer in reverse order	
17	(i) Maxine with bigger number of trials	C1	for Maxine with reason Acceptable examples She throws the coin more times than Stuart Not acceptable examples Maxine throws it 50 times She gets more Tails Stuart (he)		
	(ii) $\frac{37}{60}$	B1	for $\frac{37}{60}$ oe		

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
18	Accurate figures with supportive working	M1	for a correct first step eg $600 \div 30 (= 20)$ or $120 \div 30 (=4)$ or $600 \times 120 (=72\ 000)$ or $30 \times 30 (=900)$	Could work in m or cm
		M1	for finding an appropriate cost $2.5 \times "20" (=50)$ or $2.5 \times "4" (=10)$ OR number of tiles required $"72\ 000" \div "900" (=80)$ or $"4" \times "20" (=80)$ OR number they can afford $220 \div 2.5 (=88)$	Units must be consistent
		M1	for full method to get figures to compare eg cost to tile whole area eg $"80" \times 2.5$ OR number of tiles they need and number they can afford eg $"72\ 000" \div "900"$ and $220 \div 2.5$	
		A1	for 200 OR 80 and 88 OR 72 000 and 79 200 OR 132 (cm) OR 660 (cm)	
			SC B2 for answer of 60	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
19 (a)	$\frac{7}{15}$	M1	for suitable common denominator with at least one fraction out of two correct, eg $\frac{10}{15} - \frac{3}{15}$ oe	
		A1	oe	
(b)	$\frac{1}{2}$	M1	for method to multiply fractions, eg $\frac{2 \times 3}{3 \times 4}, \frac{8 \times 9}{12 \times 12}$ or to simplify, $\frac{1}{3} \times \frac{3}{2}$ or $\frac{2}{1} \times \frac{1}{4}$	
		A1	OR for an answer equivalent to $\frac{1}{2}$ (unsimplified) eg $\frac{2}{4}, 0.5$ cao	
20	12.5	P1	starts to process the problem, eg assigns lengths of sides to squares A and B in the ratio 1 : 2 oe and calculates at least one area OR fits 4 of square A into square B OR for ratio of areas of squares eg 1 : 4 oe	May be seen in a diagram
		P1	for process to express relationship between area of shaded triangle and area of square B, eg 1 : 8, $\frac{1}{8}$ OR 0.125	May be seen in a diagram with figure given
		A1	for 12.5 oe	

Paper: 1MA1/1F																									
Question	Answer	Mark	Mark scheme	Additional guidance																					
21	14	P1	for process to find total number of boys, $40 - 22 (= 18)$ OR the number of girls who travel by bus $10 - 6 (= 4)$																						
		P1	for process to find the number of girls who cycle to school $22 - "4" - 9 (=9)$ OR the number of boys who walk to school $"18" - 6 - 7 (= 5)$																						
		P1	full process to find the total number of students who walked to school eg $"5" + 9$ or $40 - (6 + 7 + "4" + "9")$																						
		A1	cao																						
				<table border="1"> <thead> <tr> <th></th> <th>W</th> <th>C</th> <th>B</th> <th></th> </tr> </thead> <tbody> <tr> <td>boy</td> <td>5</td> <td>(7)</td> <td>(6)</td> <td>18</td> </tr> <tr> <td>girl</td> <td>(9)</td> <td>9</td> <td>4</td> <td>(22)</td> </tr> <tr> <td></td> <td>14</td> <td>16</td> <td>(10)</td> <td>(40)</td> </tr> </tbody> </table> <p>Note 16 is 7+9 and 10 is 6+4 6+7 is 13 and 4+9=13 may be seen as intermediate steps</p>			W	C	B		boy	5	(7)	(6)	18	girl	(9)	9	4	(22)		14	16	(10)	(40)
	W	C	B																						
boy	5	(7)	(6)	18																					
girl	(9)	9	4	(22)																					
	14	16	(10)	(40)																					
22 (a)	0.4, 0.4	P1	for process to find sum of unknown probabilities, eg $1 - 0.2 (= 0.8)$	Award mark for any two probabilities given that sum to 0.8, eg given in the table																					
		A1	oe	Accept any equivalent fraction or 40%																					
(b)	60	P1	for complete process to find total number of cubes, eg $12 \div 0.2$ or 12×5 or $("0.4" \div 0.2) \times 12 + ("0.4" \div 0.2) \times 12 + 12$																						
			OR states $0.1 = 6$ or $0.4 = 24$																						
		A1	cao																						

Paper: 1MA1/1F					
Question	Answer	Mark	Mark scheme	Additional guidance	
23	(a)	600	P1	for starting process to calculate amount of flour eg $60 \div 15 (= 4)$ or $3 \times 50 (= 150)$	4 implied by 200g of sugar
			P1	for complete process eg $\frac{60}{15} \times "150"$	
(b)	2	A1	cao		
		P1	for process to calculate amount of butter eg $\frac{60}{15} \times 2 \times 50 (= 400)$		
			OR for process to calculate the number of packs of butter needed eg [butter] \div 250	[butter] must be clearly stated or calculated, may be seen in part (a)	
		A1	cao	2 must not come from incorrect working	
24	18	M1	for listing factors of 72 and 90, at least 4 correct for each (with no more than 1 incorrect in each list), could be in factor pairs	Factors of 72: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72 Factors of 90: 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45, 90	
			OR for the prime factors of 72 (2, 2, 2, 3, 3) or 90 (2, 3, 3, 5)		
		A1	for 18 or 2×3^2 oe SC B1 for answer of 6 or 9 if M0 scored	2, 3^2 is not enough, it must be a product	
25	sketch	M1	for sketch of a cylinder	Hidden edges may or may not be shown	
			A1		sketch of cylinder, with dimensions shown
				2 (cm) for radius or 4 (cm) for diameter and 5 (cm) for height	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
26	$c = -6$ $d = -1$	M1 A1 A1	for reflection in x -axis shown on diagram for $c = -6$ or $d = -1$ for both $c = -6$ and $d = -1$ SCB2 for $c = -1$ and $d = -6$	Vertices (3, -2), (5, -2), (3, -5) One correct value is M1A1 regardless of second value or diagram
27	96	P1 P1 P1 A1	for process to find the ratio of the number of pens of each colour sold, eg $2 \times 7 : 5 \times 3 : 6 \times 4$ (= 14 : 15 : 24) for process to find the proportion of green pens sold, eg $\frac{212}{"14"+"15"+"24"}$ or $\frac{"24"}{"14"+"15"+"24"}$ for a complete process to find the number of green pens sold, eg $\frac{212}{"14"+"15"+"24"} \times "24"$ or $\frac{"24"}{"14"+"15"+"24"} \times 212$ cao	Does not have to be seen as a ratio but all three needed P3 can be implied by the values 56, 60 and 96

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
28	8.5	P1 P1 P1 A1	for process to use the area of $PQRS$ to find the length of PQ , eg $10y = 45$ or $45 \div 10 (= 4.5)$ for process to use the perimeter of $ABCD$, eg $2x + 2 \times "4.5" = 26$ or $26 - 2 \times "4.5" (= 17)$ or $26 \div 2 (= 13)$ for process to use length of BC to find length of AB , eg solves $2x + 2 \times "4.5" = 26$ or $(26 - 2 \times "4.5") \div 2$ or $"13" - "4.5"$ for 8.5 or $8\frac{1}{2}$	Sets up equation for area Uses perimeter of $ABCD$ Accept $\frac{17}{2}$
29	(a) 1, -4 (b) -1 and 3	B1 B2 (B1)	cao for both correct answers for one correct solution or $(x + 1)(x - 3)$ or $(-1, 3)$	Brackets are given on the answer line, ignore any extra brackets seen

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.

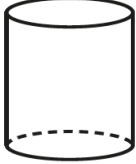
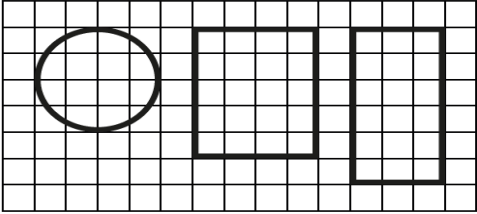
The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:

Angles: $\pm 5^\circ$

Measurements of length: ± 5 mm

PAPER: 1MA1/1F		
Question	Modification	Mark scheme notes
6	Horizontal lines added underneath the information.	Standard mark scheme
7	Diagram enlarged. Right axis labelled. Graph lines made thicker. Axes labels moved to the left of the horizontal axis and above the vertical axis.	Standard mark scheme
8	Wording 'five' added.	Standard mark scheme
12(a)	Diagram enlarged. Wording added 'Two angles are marked 25° . One angle is marked x° .' Angles moved outside of angle arcs and angle arcs made smaller. Wording added 'Find the value of the angle marked x° .'	Standard mark scheme
12(b)	Diagram enlarged. Angles a, b, c, d, e changed to v, w, x, y, z . Wording added 'Angles v, w, x, y and z are marked on the diagram.' Angles moved outside of angle arcs and angle arcs made smaller. (ii) changed to "Explain why $v + w + x = 235^\circ$ "	Standard mark scheme with a, b, c, d, e changed to v, w, x, y, z .
18	Diagram enlarged. Measurements moved above/to the left of diagram. Wording changed to 'It shows a rectangular path, 600 cm long and 120 cm wide'. Braille only: Path labelled 'rectangular path' inside the shape.	Standard mark scheme

PAPER: 1MA1/1F		
Question	Modification	Mark scheme notes
20	Diagram enlarged. Shapes labelled 'square A' and 'square B'. Labels moved above diagrams. Shading changed to dotted shading.	Standard mark scheme
22(a)	Wording added 'There are two spaces to fill.'	Standard mark scheme

Question	Modification	Mark scheme notes
25	<p>Question changed. Model should be provided.</p> <p style="text-align: center;">Diagram 1</p>  <p style="text-align: center;">Diagram 2</p>  <p>Look at the diagrams for Question 25. You may be provided with a model. Diagram 1 and the model show a solid cylinder. They are not accurate. Look at Diagram 2 below Diagram 1. Diagram 2 shows three options labelled Option A, Option B and Option C on a grid of squares. Each square on the grid represents a one centimetre square.</p> <p>The cylinder is placed with its flat face on a surface.</p> <p>(a) Which of the options, A, B or C, shows the plan of the cylinder? (1 mark)</p> <p>(b) Remember: Each square on the grid represents a one centimetre square. Using Diagram 2,</p> <p>(i) write down the diameter of the cylinder.</p> <p>(ii) write down the height of the cylinder. (1 mark)</p>	<p>Mark scheme:</p> <p>(a) B1 for Option A Could indicated on the diagram eg by circling etc. Accept a description eg circle</p> <p>(b) B1 for (i) as 4 or (ii) as 3, 4, 5 or 6</p>

PAPER: 1MA1/1F

Question	Modification	Mark scheme notes
26	<p>Diagram enlarged. Grid cut to make the axes from -7 to 7. Shading changed to dotted shading. Labels removed from inside the shapes. Shapes labelled as ‘shape A’ and ‘shape B’. Wording added ‘It shows shape A and shape B on a coordinate grid.’ Question changed to: (a) Reflect shape A in the x-axis. Label the new shape X. (1 mark). (b) Shape X can be transformed to shape B by a translation $\begin{pmatrix} c \\ d \end{pmatrix}$ Find the value of c and the value of d. (2 marks)</p>	<p>Apply the standard mark scheme but in two stages: (a) B1 for showing the reflected shape X (need not be labelled if there is only one shape drawn). (b) B2 for $c = -6$ or $d = -1$ (B1 for one correct value or reverse order)</p>
28	<p>Diagram enlarged. Wording changed to ‘It shows two rectangles, $ABCD$ and $PQRS$.’ Rectangle $PQRS$ moved to lie landscape below $ABCD$. $PQRS$ relabelled to follow clockwise vertex labelling convention prescribed in $ABCD$. Wording changed to ‘$PQ = 10\text{cm}$’, ‘$AD = PS$’. Braille only: rectangles labelled ‘Rectangle 1’ and ‘Rectangle 2’.</p>	<p>Standard mark scheme but note the change in vertex labelling.</p>
29	<p>Diagram enlarged. Graph line made thicker.</p>	<p>Standard mark scheme</p>



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Mark Scheme (Results)

Summer 2019

Pearson Edexcel GCSE (9 – 1)
In Mathematics (1MA1)
Foundation (Calculator) Paper 2F

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
1	$\frac{3}{4}$	B1	for $\frac{3}{4}$ or any other equivalent fraction	
2	-3, -1, 0, 2, 4	B1	for -3, -1, 0, 2, 4	Accept reverse order
3	At least two of 1, 3, 5, 15	B1	for at least two of 1, 3, 5, 15 with no incorrect values	Accept 3×5 etc.
4	1.756	B1	cao	
5	2 000 000	B1	for 2 000 000 or 2×10^6	
6	Yes and statement	P1 P1 C1	for a first step towards solution, eg. $2 \times 2.75 (= 5.5)$ or $2.75 + 2.9 (= 5.65)$ OR $10 - 1.5 (= 8.5)$ or $10 - 2.9 (= 7.1)$ or $10 - 2.75 (= 7.25)$ for a complete process to find figures to compare eg. $2 \times 2.75 + 2.9 + 1.5 (= 9.90)$ or $10 - (2 \times 2.75 + 2.9) (= 1.60)$ OR $2 \times 2.75 + 2.9 (= 8.40)$ and $10 - 1.5 (= 8.5)$ for correct conclusion with accurate figure(s) eg. Yes and (£)1.6(0) or Yes and (£)9.9(0) or Yes and (£)8.4(0) and (£)8.5(0)	
7	7y	B1	for 7y oe	Accept $7 \times y$ oe Accept a formula, eg. $P = 7y$ but not $y = 7y$

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
8	(a) $7ab$	B1	for $7ab$	
	(b) y^3	B1	cao	
	(c) $\frac{e}{f}$	M1	for a correct first step, eg. numerator of $e^{3 \times f}$ or denominator of $e^2 \times f^2$ OR $e \div f$ or $e \times f^{-1}$ OR relevant crossings out for all the e 's and all the f 's	
		A1	for $\frac{e}{f}$ or ef^{-1}	
9	(a)(i) 24	B1	cao	
	(ii) 18	B1	cao	
	(b) Diagram	M1	for $36 \div 9$ or for using ratio 1 : 8 or setting up $w + 8w (=36)$	Fully correct diagram with no method shown gets all 3 marks
		A1	for 4 and 32	
		C1	for correct diagram or ft (dep on M1) for drawing "4" and "32"	SC: B2 for 4 full circles for Wed and half a circle for Thursday SC: B1 for either Wed correct or for Thurs correct in the diagram if M0 scored
10	$14 < 21$ $4+7 = 103 - 92$ $2^2 = 2 \times 2$ $-3 > -5$	B2	for all 4 correct	
		(B1	for 2 or 3 correct)	

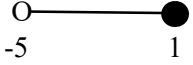
Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
11	23	M1 A1	for substitution eg. 7×5 and 3×-4 or $7(5) + 3(-4)$ cao	$7 \times 5 (= 35)$ and $3 \times -4 (= -12)$ may be seen separately but both must be seen for the award of M1
12 (a)	7	B1	cao	
(b)	1 hr 38 mins	M1 A1	for a complete method to find the time difference eg. $9\ 00 - 7\ 22$ OR a calculation on a number line, may be seen in any time format OR work in parts eg hours and minutes, may work in any units, eg. $60 - 22 (= 38) + 1$ hour OR a clear build up method from $07\ 22$ to $09\ 00$ OR for correct values seen in an incorrect format, eg. 1.38 or 1:38 or 98 without units 1 hr 38 (mins) or 98 minutes or 1.6 $\dot{3}$ hrs	
13	10	P1 P1 A1	for starting the problem, $12 \div 6 (=2)$ for a complete process to find width " 2 " $\times 5$ cao	The square of side 2 cm may be just seen on the diagram
14	2 : 1	B1	cao	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
15	3240	P1	for $90 \times 60 (= 5400)$ OR $40 \div 100 \times 90 (= 36)$ OR $40 \div 100 \times 60 (= 24)$	
		P1	for a process to work out area that is flowers eg. $40 \div 100 \times "5400" (= 2160)$ OR $"36" \times 60 (= 2160)$ OR $90 \times "24" (= 2160)$	
		P1	for a full process to find the area that is grass eg. $"5400" - "2160" (= 3240)$	
		A1	cao	
		P1	ALTERNATIVE for $100 - 40 (= 60)$	
		P1	(indep) for $90 \times 60 (= 5400)$ OR $90 \times 60 \div 100 (= 54)$ or $60 \times 60 \div 100 (= 36)$	
		P1	for a full process to find the area that is grass eg. $"60" \div 100 \times "5400" (= 3240)$ OR $"54" \times 60 (= 3240)$ or $"36" \times 90 (= 3240)$	
		A1	cao	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
16 (a)(i)	B	B1	for B, accept 0.033 on the answer line	Accept rounded conversions seen to decimals or percentages if the reasoning is correct
(ii)	C	B1	for C, accept $\frac{1}{3}$ on the answer line	
(b)	Statement	C1	eg No with $(\frac{1}{3})$ and $\frac{2}{3}$ or No, probabilities would need to be $\frac{1}{2}$ or No since $\frac{1}{3} + \frac{1}{3}$ does not equal 1 or No since tails is 67% (or 0.67)	
(c)	132	M1	for 4000×0.033	
		A1	OR $\frac{132}{4000}$ cao	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
17	180.9	P1	for starting to work with proportion eg. $60 \div 100 (= 0.6)$ or $150 \div 100 (= 1.5)$ OR $100 \div 60 (= 1.66..)$ or $100 \div 150 (= 0.66..)$ OR $84 \div 100 (= 0.84)$ or $87 \div 100 (= 0.87)$ or $84 \div 10 (= 8.4)$ or $87 \div 10 (= 8.7)$ or $84 \div 2 (= 42)$ or $87 \div 2 (= 43.5)$ OR $100 \div 84 (= 1.19..)$ or $100 \div 87 (= 1.14..)$	
		P1	for a complete process to work out the calories in either item eg. $“0.6” \times 84 (= 50.4)$ or $“1.5” \times 87 (= 130.5)$ OR $84 \div “1.66..” (= 50.4)$ or $87 \div “0.66..” (= 130.5)$ OR $“0.84” \times 60 (= 50.4)$ or $“0.87” \times 150 (= 130.5)$ or $“8.4” \times 6 (= 50.4)$ or $“8.7” \times 15 (= 130.5)$ or $“42” \times 6 \div 5 (= 50.4)$ or $“43.5” \times 3 (= 130.5)$ OR $60 \div “1.19..” (= 50.4)$ or $150 \div “1.14..” (= 130.5)$	
		P1	(dep on P2) for a complete process to find total number of calories in the breakfast, eg. $“50.4” + “130.5”$	
		A1	for 180.9 or 181	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
18	952	P1 P1 P1 A1	<p>for starting to work with parts, eg. $6 \times 60 \div 10 (= 36)$ or $10 \div 6 (= 1.66..)$ or $6 \div 10 (= 0.6)$ or $13 \times 60 \div 15 (= 52)$ or $15 \div 13 (= 1.15..)$ or $13 \div 15 (= 0.866..)$ OR for $60 \div 10 \times 12 (= 72)$ or $10 \times 60 \div 15 (= 40)$</p> <p>for a full process to find the number of parts made by machine A eg “36” $\times 12 (= 432)$ or $12 \times 60 \div “1.66..” (= 432)$ or $12 \times 60 \times “0.6” (= 432)$ OR “72” $\times 6 (= 432)$</p> <p>for a full process to find the number of parts made by machine B eg “52” $\times 10 (= 520)$ or $10 \times 60 \div “1.15..” (= 520)$ or $10 \times 60 \times “0.866..” (= 520)$ OR “40” $\times 13 (= 520)$</p> <p>for 952 or 432 and 520</p>	
19	Shaded region	M1 M1 M1 A1	<p>for $180 \div 30 (= 6)$ or $150 \div 30 (= 5)$</p> <p>draws an arc of radius “6 cm” centre A or draws a line segment parallel to BC and “5 cm” away</p> <p>for an arc of radius “6 cm” centre A and a line parallel to BC and “5 cm” away with no additional arcs or lines drawn</p> <p>Answer within tolerance with region shaded</p>	<p>This may be just used in a correct locus drawn on the diagram</p> <p>Ignore any additional arcs or lines drawn</p> <p>Accept shading out leaving the required region unshaded</p>

Paper: 1MA1/2F																				
Question	Answer	Mark	Mark scheme	Additional guidance																
20 (a)	$n > 2$	M1	for a method to isolate terms in n in any inequality or equation eg. $14n - 11n > 6$ or $n = 2$	Ignore incorrect inequality sign and accept “=” sign A circle around -5 and 1 implies M1 A line from -5 to 1 implies M2 if no working shown																
(b)		A1	cao																	
		M1	for $-2 - 3 < x \leq 4 - 3$ ($-5 < x \leq 1$)																	
		M1	for drawing a line from -5 to 1 or (indep) for an open circle at either -2 or -5 or (indep) for a closed circle at 4 or 1																	
		A1	cao																	
21	Graph	B3	for a correct line between $x = -2$ and $x = 4$	Ignore any incorrect points. Points need not be plotted for a correct line (segment) drawn Table of values <table border="1" data-bbox="1541 922 2022 1002"> <tr> <td>x</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>y</td> <td>-7</td> <td>-5</td> <td>-3</td> <td>-1</td> <td>1</td> <td>3</td> <td>5</td> </tr> </table> Ignore any incorrect points Coordinates may be in a table or in working	x	-2	-1	0	1	2	3	4	y	-7	-5	-3	-1	1	3	5
x	-2	-1	0		1	2	3	4												
y	-7	-5	-3		-1	1	3	5												
		(B2)	for a correct straight line segment through at least 3 of $(-2, -7), (-1, -5), (0, -3), (1, -1), (2, 1), (3, 3), (4, 5)$ or for all of these points plotted but not joined OR for a line drawn with a positive gradient through $(0, -3)$ and clear intention to use a gradient of 2, eg line through $(0, -3)$ going across 2 squares and up 4 squares)																	
		(B1)	for at least 2 correct points stated or plotted OR for a line drawn with a positive gradient through $(0, -3)$ OR a line with gradient 2)																	

Paper: 1MA1/2F					
Question	Answer	Mark	Mark scheme	Additional guidance	
22 (i)	65	M1	for working with proportion eg. $10 \div 30 \times 195 (= 65)$	Condone use of 200 for 195	
		A1	cao		
(ii)	statement	C1	for statement Acceptable examples sample is representative (otherwise answer wrong) random sample (otherwise answer will be different) the 30 students are from the 195 (otherwise not accurate) 10 out of every 30 want to go to the Theme Park (otherwise answer will be different/wrong) there is no bias Not acceptable examples There would be more than 10 people who want to go to the Theme Park I rounded my answer		
23	8	P1	for working with volume of the cuboid, eg $30 \times 6 \times 19 (= 3420)$ OR for using $\frac{2}{3}$ with one dimension, eg. $30 \times 2 \div 3 (= 20)$	For P marks, ignore attempts at unit conversion	
		P1	for “3420” $\times 2 \div 3 (= 2280)$ or “3420” $\div 3 (= 1140)$ OR “20” $\times 6 \times 19 (= 2280)$ OR “3420” $\div 275 (= 12.4\dots = 12 \text{ cups})$		
		P1	(dep on P2) for “2280” $\div 275 (= 8.29\dots)$ or “1140” $\div 275 (= 4.14\dots)$ OR “12” $\times 2 \div 3$ OR for $275 \times 8 (= 2200)$ or $275 \times 9 (= 2475)$		
		A1	cao		

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
24	9.85	M1 A1	for $\sin(38) = \frac{AB}{16}$ oe or alternative method to find AB for an answer in the range 9.76 to 9.92	
25	8.3 and 8.4	B1 B1	for 8.3 in the correct position for 8.4 in the correct position	Accept 8.3 $\dot{9}$ or 8.399...
26	168	P1 P1 P1 A1	for working with ratio to find the amount for C or D eg. $1.5 \times 2 (=3)$ or (A, B, C, D =) 2, 7, 3, 3 oe OR for suitable expressions linking A with C or D, eg. $A = x, C = 1.5x$ for “2 + 3 + 3 + 7” (=15) OR adds 4 suitable expressions, eg. “ $x + 3.5x + 1.5x + 1.5x$ ” (= 7.5x) for a complete process to find the amount of money eg. $360 \div “15” \times 7$ OR $360 \div “7.5” \times 3.5$ cao	

Paper: 1MA1/2F					
Question	Answer	Mark	Mark scheme	Additional guidance	
27	(a)	5.62×10^{-3}	B1	cao	
	(b)	1452	B1	cao	
28	(a)	24, 39	B1	cao	SC: B1 for 3, 5, 8 seen if M0 scored
	(b)	$8a$	M1 A1	for a complete method to find the next 2 terms, eg. $a + 2a (= 3a)$ and $2a + "3a" (= 5a)$ $8a$ oe	
29	$\begin{pmatrix} -2 \\ 1 \end{pmatrix}$	M1 A1	for $4 - 2 \times 3 (= -2)$ or $5 - 2 \times 2 (= 1)$ seen as a calculation OR for $\begin{pmatrix} 4 \\ 5 \end{pmatrix} - \begin{pmatrix} 2 \times 3 \\ 2 \times 2 \end{pmatrix}$ OR for $\begin{pmatrix} -2 \\ b \end{pmatrix}$ where $b \neq 1$ or $\begin{pmatrix} a \\ 1 \end{pmatrix}$ where $a \neq -2$ cao	May be in a column vector	

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
2		Wording 'five' added.	Standard mark scheme
8	(a)	Change a and b to m and n - MLP and Braille.	Standard mark scheme but a and b changed to m and n .
8	(c)	Braille only: change e and f to r and s .	Standard mark scheme but e and f changed to r and s .
9		Diagram enlarged. Key moved above the diagram. Circles divided into four sections. Wording 'incomplete' added.	Standard mark scheme
10		Symbols removed from the frame and enlarged. Boxes enlarged.	Standard mark scheme
11		Question wording changed to 'Work out the value of P when $r = 5$ and $q = -4$ given that $P = 7r + 3q$.'	Standard mark scheme
13		Diagram enlarged. Width label moved to the left-hand side of the diagram. Length and width lines changed to dashed lines. Shading changed to dotted shading. Wording 'shaded' added. Grid lines added.	Standard mark scheme

PAPER: 1MA1/2F		
Question	Modification	Mark scheme notes
15	Diagram enlarged. Label moved to the left-hand side of the diagram.	Standard mark scheme
19	Diagram kept the same size. Scale moved above the diagram.	Standard mark scheme
20	(b) Diagram enlarged. Wording 'below' removed.	Standard mark scheme
21	Diagram enlarged. Wording 'below' removed.	Standard mark scheme
23	Diagram enlarged. Wording changed to 'It shows a container in the shape of a cuboid with length 30 cm, width 6 cm and height 19 cm.' Second 19 cm label added on the left of the diagram. Dashed line and 'Water' added.	Standard mark scheme
24	Diagram enlarged. Angle moved outside of the angle arc and the angle arc made smaller. Wording added: 'AC = 16 cm Angle ACB = 38° Angle ABC is a right angle.'	Standard mark scheme
28	(b) Braille only: 'a' changed to 'm'.	Standard mark scheme but <i>a</i> changed to <i>m</i> for Braille.



Pearson
Edexcel

Mark Scheme (Results)

Summer 2019

Pearson Edexcel GCSE (9 – 1)
In Mathematics (1MA1)
Foundation (Calculator) Paper 3F

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
1	500	B1	cao	
2	48 or 56	B1	for 48 or 56	Accept either or both. Do not award the mark if other numbers are shown with either.
3	1500	B1	cao	
4	9, 27	B1	cao	Do not award the mark if other numbers are shown.
5	$\frac{19}{100}$	B1	or any other equivalent fraction.	
6	16	M1 A1	for a complete method to find 20% of 80 eg 80×0.2 oe cao SC B1 for an answer of 64 or 96	
7	6	M1 A1	for interpreting the table to find the number of green counters ($26 + 7 (= 33)$) or the number of red counters ($16 + 11 (= 27)$) or the difference in circles ($26 - 16 (=10)$) or squares ($11 - 7 (=4)$) cao	$33 - 27 = 6$ $10 - 4 = 6$
8	39	M1 M1 A1	for finding one quarter of 52, eg $52 \div 4 (= 13)$ OR for finding the fraction to be filled, eg $1 - \frac{1}{4} \left(= \frac{3}{4} \right)$ oe M1 for a complete method eg $52 - "13"$ or $"13" \times 3$ OR for $"\frac{3}{4}" \times 52$ A1 cao	Accept equivalent decimals or percentages

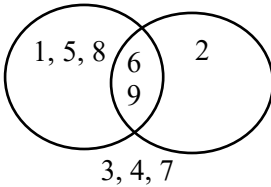
Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
9	$11e + 5f$	M1 A1	for either $11e$ or $5f$ for $11e + 5f$	
10	$\frac{3}{5}$	M1 M1 A1	for a start in the method eg $35 + 50 + 75 (= 160)$ or $400 - 35 - 50 - 75 (= 240)$ or $\frac{160}{400}$ oe for eg $\frac{400 - "160"}{400}$ or $\frac{2}{5}$ or $1 - \frac{160}{400}$ or for an unsimplified answer eg $\frac{"240"}{400}$ oe or as 60% oe cao	
11 (a)	241.56	P1 P1 A1	for difference for 1 parcel eg $35.38 - 15.25 (= 20.13)$ OR for total cost for 12 parcels by either service eg $35.38 \times 12 (= 424.56)$ or $15.25 \times 12 (= 183)$ for a complete process eg $"20.13" \times 12$ or $"424.56" - "183"$ cao	
(b)	Explanation	C1	for explanation Acceptable examples both figures rounded down (refers to both figures) 20 is less than 21 and 15 is less than 15.25 Not acceptable examples both figures rounded (up); rounded down either 20 is less than 21 or 15 is less than 15.25 (refers to just one figure) the cost is 320.25 (more than 300); multiplying with bigger numbers	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
12	$\frac{9}{25}$	M1 A1	for $\frac{n}{6+9+10}$ where n is an integer < 25 for $\frac{9}{25}$	Or equivalent fraction
13 (a)	example	C1	example given eg 40, 80, etc.	No can be implied from their statement
(b)	No with reason	C1	for No with reason Acceptable examples 80 and 88 are both in the sequence 80 is in the sequence and 85 is 5 more 24, 32, 80, 88, 85 is not in the 8 times table 85 is an odd number $8n+16=85$ so n is not a whole number. Not acceptable examples adding 8 each time will not lead to 85 (insufficient) it goes past 85 Yes	
14	2.4774(011...)	M1 A1	for 8.77 or 3.54 or 2.477 or 2.47 or 2.48 or $\frac{877}{354}$ for 2.4774(011...)	If the answer has been rounded to less than 4 dp but the figure is shown in working to 4 dp or more, award full marks. Ignore any incorrect digits after the 4 th decimal place.

Paper: 1MA1/3F					
Question	Answer	Mark	Mark scheme	Additional guidance	
15	(a)	330	M1	for $4 \times 70 + 50$ oe	May be seen as sum of four 70s and a 50 $n \times (70 + 50)$ or ambiguous working gets 0 marks Need not have brackets; can be written in an incorrect order if the intention is clear A correct but embedded answer gets 1 mark
		A1	cao		
	9	M1	for use of inverse operations eg $(680 - 50) \div 70$ OR rearranges an equation to solve eg $70x + 50 = 680$ rearranged to isolate x term. OR ft (a) eg $((680 - "330") \div 70) + 4$		
		A1	cao or ft their (a)		
16	32	P1	for a process to work out the missing length eg $6 - 4 (=2)$ or for a process to work out the length of the base eg $4 + 6 (= 10)$ OR for finding total perimeter of 2 rectangles, eg $2(6 + 4 + 6 + 4) (= 40)$ OR for writing at least 5 figures correctly on the diagram	May be seen on the diagram	
		P1	for a process to work out the perimeter eg $4 + "2" + 6 + 4 + 6 + 4 + 6$ or $20 + 20 - 2 \times 4$ or $16 + 14 + "2"$	May be seen in different forms	
		A1	cao SC B1 for 30		
17	9	M1	for a method to find the scaling factor eg $"10.8" \div "1.8" (= 6)$ or $"1.8" \div 1.5 (=1.2)$ or $1.5 \div "1.8" (=0.833..)$ or a sf given from 5.5 to 6.5 or from 1.06 to 1.4 or from 0.75 to 0.94 eg used with 1.5	Could be shown on the diagram by appropriate working eg 6 steps Allow 10.6 to 11.0 and 1.6 to 2.0 for their measured lengths.	
		A1	accept an answer in the range 8 to 10		

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
18 (a)	2	B1	cao	Check working space or next to the table. Zero points may not be seen so accept without $0 \times 4, 0$
(b)	81	M1	for working with values from the table eg $(0 \times 4), (1 \times 3), \dots$ with at least 3 products shown correct or $(0 +), 3, 14, 15, 24, 25$ with at least 3 correct	
		A1	cao SC B1 for 85	
19	$x = \frac{y-4}{2}$	M1	for correct first step to rearrange eg $y - 4 = 2x + 4 - 4$ or $\frac{y}{2} = \frac{2x+4}{2}$ or ambiguously shown eg $x = y - 4 \div 2$ or answer given as $\frac{y-4}{2}$	May be seen in different equivalent forms but must be carried out, not just intention seen. Could be shown as a flow diagram but must have correct inverse operations
		A1	oe	
20	105	M1	for evidence of understanding the angle properties of a square or equilateral triangle, eg stating angle $DBC = 60$ or angle $EBD = 45$ or angle $BAE = 90$	Accept on the diagram with no contradiction in working, or no contradiction or ambiguity on the diagram; 90 can be shown as a right angle Could be shown on the diagram or in working, but do not accept contradiction or ambiguity.
		A1	cao	
21	78	P1	for process to find the number of rand, eg $850 \times 18.53 (= 15750.5)$ OR for process to find number of £, eg $200 \div 18.53 (= 10.79 \dots)$	
		P1	(dep P1) for process to find the number of rand notes, eg “ $15750.5 \div 200 (= 78.7\dots)$ ” OR $850 \div “10.79\dots” (= 78.7\dots)$	
		A1	cao	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
22	79.76	P1	process to find number of gallons eg $560 \div 34.5 (=16.23\dots)$ OR finding the miles per litre eg $34.5 \div 4.55 (=7.582\dots)$	For P marks allow use of truncated/rounded values To 2 dp but accept 79.7
		P1	process to convert from gallons to litres eg $“16.23” \times 4.55 (=73.855\dots)$ OR to work out the cost per gallon eg $4.55 \times 1.08 (=4.914)$ OR finding the number of litres eg $560 \div “7.582\dots” (=73.859\dots)$	
		P1	(dep P2) for a complete process to work out the cost using the operations $(560 \div 34.5) \times 4.55 \times 1.08$ eg $“73.855\dots” \times 1.08 (=79.763\dots)$ or $“4.914” \times “16.23\dots” (=79.763\dots)$ or $“73.859\dots” \times 1.08 (=79.763\dots)$	
		A1	for 79.69 to 79.79	
23	612	P1	Alan: for $100 - 32 - 40 (=28)$ or for finding “28”% of 400 eg $400 \times 0.28 (=112)$	Answers only (without working) award 0 marks.
		P1	Beryl: for $1 - \frac{3}{10} - \frac{1}{10} \left(= \frac{6}{10} = 60\% \right)$ or for finding $“\frac{6}{10}” \times 500$ (=300)	
		P1	Charlie: for starting to use the ratio 3 : 4 eg $150 \div 3 (=50)$	
		P1	for complete ratio process eg $“\frac{150}{3}” \times 4 (=200)$	
		A1	cao	

Paper: 1MA1/3F					
Question	Answer	Mark	Mark scheme	Additional guidance	
24	(a)	6,9	M1	for 6, 9 in the intersection only	Ignore all entries except the region you are marking for each method mark 
		1,5,8	M1	for 1, 5, 8 in set A only	
		2		or 2 in set B only	
	3, 4,7	C1	for 3, 4, 7 in set $(A \cup B)'$ only		
	(b)	$\frac{2}{9}$	M1	for all numbers correctly placed in the Venn Diagram	Need not be written in correct form at this stage eg could be a ratio 2 : 9 Repeated digits in the diagram should be counted as 2 elements Accept any equivalent fraction, decimal form 0.22(22..) or percentage form 22(.22...) %
		A1	ft for identification of 2 or 9 or ft diagram $\frac{2}{9}$ oe or ft diagram		
25	12272.70 12272.71 or 12272.72	M1	for evidence of using a correct first step eg $200000 \times 0.015 (= 3000)$ or $200000 \times 1.015 (= 203000)$	values may be rounded or truncated to 2 dp	
		M1	for evidence of a compound interest method eg $203000 \times 0.015 (= 3045)$ or $203000 \times 1.015 (= 206045)$ or $206045 \times 0.015 (= 3090.675)$ or $206045 \times 1.015 (= 209135.675)$ or $209135.675 \times 0.015 (= 3137.035\dots)$ or $209135.675 \times 1.015 (= 212272.710\dots)$ or $200000 \times 1.015^t, t \geq 2$		
		A1	for 12272.7(0) or 12272.71 or 12272.72 SC B2 for 212272.7(0) or 212272.71 or 212272.72		

Paper: 1MA1/3F					
Question	Answer	Mark	Mark scheme	Additional guidance	
26	(a)	$40 < h \leq 50$	B1	accept 40 – 50 oe	
	(b)	<p>polygon drawn</p> <p>(15,7), (25,13)</p> <p>(35,14), (45,12)</p> <p>(55,16), (65,18)</p>	<p>B2</p> <p>(B1)</p>	<p>for fully correct polygon with points plotted at the midpoints</p> <p>for points plotted correctly but not joined by straight lines</p> <p>or joining points at correct heights consistently within intervals including plotting at end values</p> <p>or correct frequency polygon with one point incorrect</p> <p>or correct frequency polygon with first and last points joined directly)</p>	<p>Joining must be with line segments</p> <p>for example, at 10, 20, 30,...or at 20, 30, 40,...</p> <p>Ignore any histogram drawn and any part of frequency polygon outside range of first and last points plotted</p>

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
27	statement	B2	<p>Two different statements</p> <p>Acceptable</p> <p>eg should be joined with straight lines (not curve)/should use a ruler 1st (quarter) not shown/plotted/labelled/not all quarters labelled does not show all 4 seasons 9.5 missing from vertical axes/not linear vertical (number) axis does not start at 0/the y axis starts at 6 the graph does not begin at 0, it starts at 6 it is not clear what 2, 3, 4 on the x-axis mean the scale of years doesn't make sense there is lack of clarity about what the numbers on the x axis represent graph is curved line</p> <p>Not acceptable</p> <p>eg no value plotted for 2 in 2016 it does not start at 0 (no reference to vertical axis)/missing 0 they should not have connected the dots like that the numbers on the x axis are repeated the numbers along the x axis 2, 3, 4 the years on the x axis have not been written properly does not follow a sequence it needs a discontinuity wiggle on the axis no title</p>	Ignore additional statements provided no contradiction
	statement	(B1	One statement eg from those above.)	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
28	162 supported	M1	for method to find sum of the interior angles of a hexagon eg $(6 - 2) \times 180 (= 720)$ oe OR for method to find sum of the interior angles of a pentagon, eg $(5 - 2) \times 180 (= 540)$ OR for method to find angle AFC or BCF , eg $(360 - 2 \times 117) \div 2 (= 63)$ OR for dropping a perpendicular from A or B to ED with 90° marked on ED and 27° at the top	Must be a complete process that would lead to a figure of 720 if evaluated correctly. For a pentagon there must be an indication that they have divided the hexagon into two halves. 63 may be shown on the diagram for angle AFC or angle BCF
		M1	for method to use ratio 2 : 1 eg marks as $2x$ and x or as x and $\frac{1}{2}x$ on diagram OR for $([\text{angle sum of hexagon}] - 2 \times 117) \div 6 (= 81)$ oe or $([\text{angle sum of hexagon}] \div 2 - 117) \div 3 (= 81)$ oe or $117 + 117 + 2x + 2x + x + x = [\text{angle sum of hexagon}]$ oe OR eg $([\text{angle sum of pentagon}] - 117 - 180) \div 3 (= 81)$ oe or $117 + 180 + 2x + x = [\text{angle sum of pentagon}]$ oe	Ratio must be used correctly if awarded for diagram Award provided $[\text{angle sum of hexagon}]$ is greater than 700 or $[\text{angle sum of pentagon}]$ is greater than 500 Algebraic route needs to show both sides of the equation. LHS of equation may be simplified.
		M1	for finding angle $FED = 81$ or for finding angle $CDE = 81$ OR for complete process to find angle AFE eg $([\text{angle sum of hexagon}] - 2 \times 117) \div 6 \times 2$ oe OR $([\text{angle sum of pentagon}] - 117 - 180) \div 3 \times 2$ oe	This may be shown by solving a correct equation to find the value of x .
		C1	for accurate working leading to angle $AFE = 162$	Award marks for 162 on the diagram with working and not contradicted by the answer line. Award 0 marks for 162 without working.

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
29	No Supported	P1	for finding the area of a circle eg $\pi \times 0.8^2 (= 2.01\dots)$	Must be area of circle and not part of a volume, eg $\pi r^2 h$ May be seen as $2\pi r^2$
		P1	for finding the curved surface area eg $2\pi \times 0.8 \times 1.8 (= 9.047\dots)$	May be seen from $2\pi r h$ or from $\pi d h$
		P1	for use of the coverage information with an area eg “2.01...” $\div 5 (= 0.402\dots)$ or “4.02...” $\div 5 (= 0.804\dots)$ or “9.047...” $\div 5 (= 1.8095\dots)$ or “11.058” $\div 5 (= 2.2116\dots)$ or “13.069...” $\div 5 (= 2.6138\dots)$ OR for process to find total coverage for comparison eg $5 \times 7 (= 35)$	Accept numbers without working written to no less than 2dp Do not award if a volume has been used as part of the calculation. An independent mark for 5×7
		P1	(dep P1) for finding total surface area for 3 tanks eg [total surface area] $\times 3 (= 39.2\dots)$ OR for complete process to find the number of tins needed for total area of 3 tanks eg “13.069”... $\times 3 \div 5 (= 7.84\dots)$ OR for complete process to find coverage needed from each tin eg “13.069”... $\times 3 \div 7 (= 5.6\dots)$	[total surface area] must come from the addition of two attempts at area, but not from volume.
		C1	for conclusion “No” supported by accurate figures eg 8 tins or 7.84 (> 7) or 39.2 > 35 or 5.6 (> 5)	Clear statement that there is not enough paint supported by correct figures for comparison. NB: $2.6 \times 3 = 9$ tins needed is inaccurate 8 or 7.84 tins is sufficient without restating the 7, 5.6 m ² is sufficient without restating the 5 but 39.2 and 35 are needed for comparison. A statement of “No, 8 tins” alone gets 0 marks without supporting working.

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
30	$x = 1, y = -2$	M1	for a correct method to eliminate either x or y or method leading to substitution (condone one arithmetic error)	
		M1	(dep M1) for substituting found value in one of the equations OR correct method after starting again (condone one arithmetic error)	
		A1	cao	

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
4	Wording added 'eight'.	Standard mark scheme
7	Table turned vertical.	Standard mark scheme
8	Diagram enlarged. Labels moved above the gauge. Shading changed to dotted shading.	Standard mark scheme
9	Braille only: <i>e</i> changed to <i>s</i> , <i>f</i> changed to <i>t</i> .	Standard mark scheme, but see note for Braille
16	Diagrams enlarged, labelled as Diagram 1 and Diagram 2. Wording added 'Diagram 1 shows a rectangle with length 6 cm and width 4 cm.' Wording changed to 'Below Diagram 1, Diagram 2 shows a 6-sided shape made from two of these rectangles.'	Standard mark scheme
17	Diagram enlarged and simplified.	Standard mark scheme
20	Diagram enlarged.	Standard mark scheme
23	Information moved to Diagram Book	Standard mark scheme

PAPER: 1MA1/3F		
Question	Modification	Mark scheme notes
24	Diagram enlarged. Wording added 'It shows an incomplete Venn diagram.' Ovals made circular. Regions labelled 'Set A' and 'Set B' on the diagram. Braille only – spaces labelled (i) to (iv).	Standard mark scheme
26	Frequency column widened. The first two numbers in the table changed to 8 and 12 In part (b) diagram enlarged. Right axis labelled. Scale changed. Axes labels moved to the left of the horizontal axis and above the vertical axis.	Standard mark scheme but the first two points plotted in (b) should be at (15,8) and (25,12)
27	Diagram enlarged. Crosses changed to solid dots. Axes labels moved to the left of the horizontal axis and above the vertical axis.	Standard mark scheme
28	Wording added ' <i>ABCDEF</i> '. Diagram enlarged. Angle moved outside of the angle arc and the angle arc made smaller.	Standard mark scheme
29	Diagram enlarged and labelled as Diagram 1. Inside the cylinder labelled as 'Tank'. Diagram of the circular face added and labelled as Diagram 2. Wording added 'Diagram 1 shows a tank.' Wording changed to 'Each tank is in the shape of a cylinder with both a top and a bottom as shown in Diagram 2'. Model of Diagram 1 provided for Braille candidates only.	Standard mark scheme