Mark Scheme (Results)

November 2022

Pearson Edexcel GCSE
In Mathematics (1MA1)
Higher (Calculator) Paper 2H

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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 rega**rding the application of the mark scheme to a candidate's response,** the response should be sent to review.

2   All the marks on the mark scheme are designed to be awarded; mark schemes should be applied positively. Examiners should also be prepared to award **zero marks if the candidate's response is not worthy of credit according to the mark scheme.** If there is a wrong answer (or no answer) indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

     Questions where working is not required: In general, the correct answer should be given full marks.
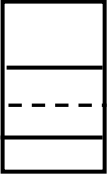   Questions that specifically require working: In general, candidates who do not show working on this type of question will get no marks – full details will be given in the mark scheme for each individual question.

3   Crossed out work
     This should be marked unless the candidate has replaced it with
     an alternative response.

4   Choice of method
     If there is a choice of methods shown, mark the method that leads to the answer given on the answer line.
     If no answer appears on the answer line, mark both methods then award the lower number of marks.

5   Incorrect method
     If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review for your Team Leader to check.

6   Follow through marks
     Follow through marks which involve a single stage calculation can be awarded without working as you can check the answer, but if ambiguous do not award.
     Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

7   Ignoring subsequent work
        It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question or its context. (eg an incorrectly cancelled fraction when the unsimplified fraction would gain full marks).
        It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect (eg. incorrect algebraic simplification).

8   Probability
        Probability answers must be given as a fraction, percentage or decimal. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
        Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
        If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

9   Linear equations
        Unless indicated otherwise in the mark scheme, full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously identified in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

10   Range of answers
        Unless otherwise stated, when an answer is given as a range (eg 3.5 – 4.2) then this is inclusive of the end points (eg 3.5, 4.2) and all numbers within the range

11   Number in brackets after a calculation
        Where there is a number in brackets after a calculation eg 2 × 6 (=12) then the mark can be awarded either for the correct method, implied by the calculation or for the correct answer to the calculation.

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

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

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

Guidance on the use of abbreviations within this mark scheme

M method mark awarded for a correct method or partial method

P process mark awarded for a correct process as part of a problem solving question

A accuracy mark (awarded after a correct method or process; if no method or process is seen then full marks for the question are implied but see individual mark schemes for more details)

C communication mark awarded for a fully correct statement(s) with no contradiction or ambiguity

B unconditional accuracy mark (no method needed)

oe or equivalent

cao correct answer only

ft follow through (when appropriate as per mark scheme)

sc special case

dep dependent (on a previous mark)

indep independent

awrt answer which rounds to

isw ignore subsequent working

Paper: 1MA1/2H					
Question		**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
1	(a)	(2, 1)	B1	cao	
	(b)	Description	C1	correct description, eg as the amount of rainfall decreases the number of hours of sunshine increases	Accept negative correlation Ignore any comment about strength Any numbers used in the description must be within tolerance
	(c)	3 to 4	M1	for a suitable line of best fit drawn, **or** for a point marked at $(x, 7)$, **or** a horizontal line drawn from 7 across to $(x, 7)$ where x is in the range 2.5 to 4	
			A1	answer in the range 3 to 4	
2		Elevation	B2	fully correct side elevation 5 high and 3 wide	
			(B1	for a rectangle 5 high and 3 wide or correct side elevation in the wrong orientation)	
3	(a)	$6n + 1$	B2	oe	
			(B1	for $6n + c$ where c is an integer $\neq 1$ or is missing)	
	(b)	Shown with supportive working	M1	for $8 - 6n = -58$ or $8 - 6 \times 11$ $(= -58)$ **or** starts to list terms of the sequence, with at least 3 correct or any other valid method.	$2, -4, -10, -16, -22, -28, -34, -40, -46, -52$
			A1	shown with working or an explanation , eg Yes and 11 or $2, -4, -10, -16, ..., -52, -58$	May stop at -58 or ring if sequence continues

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
4	186.15	P1	for correctly finding the area of at least three sections, eg 3 of $11 \times 7 \ (= 77)$, **or** $9 \times 7 \ (= 63)$, **or** $\frac{1}{2} \times 11 \times 9 \ (= 49.5)$, **or** $\frac{1}{4} \times \pi \times 7^2 \ (= 38.4845..)$	Note a trapezium for the rectangle and triangle should be classed as two areas. Accept figures rounded or truncated to 1 dp or better throughout.
		P1	for a method to find the number of bags required for one area or a combination of areas eg "77" ÷ 14 (= 5.5) **or** "227.9845.." ÷ 14 (= 16.2846…)	
		P1	for method to work out the total area for all four sections eg "77" + "63" + "49.5" + "38.4845…" (= 227.9845…) or adding the exact number of bags per section for all four sections eg "5.5" + "4.5" + "3.53.." + "2.74.." (= 16.28...)	This mark is dependent upon correct processes seen for all four sections.
		P1	for method to find the cost, eg integer number of bags × 10.95	integer number of bags must come from area ÷ 14 rounded up
		A1	cao	
5	8.73	M1	for a correct trig statement, eg $14.5 \times \cos 53$ or $\cos 53 = x \div 14.5$	Can use a combination of skills but must have only one unknown in x to score this mark
		A1	answer in the range 8.726 to 8.73	If an answer is given in the range in working and then rounded incorrectly award full marks.
6	7318.15	M1	for a correct first step eg working out increase for one year $7000 \times (100 + 3) \div 100 \ (= 7210)$ oe **or** $7000 \times 3 \div 100 \ (= 210)$ oe **or** find the multiplier for both years eg $(100 + 3) \div 100 \times (100 + 1.5) \div 100 \ (=1.04545)$	7315 or 315 implies M1
		M1	for a compound method, eg $7000 \times (100 + 3) \div 100 \times (100 + 1.5) \div 100$ oe **or** "7210" × 1.5 ÷ 100 or (= 108.15) oe	318.15 implies M1M1A0
		A1	cao	

Paper: 1MA1/2H

Question		Answer	Mark	Mark scheme	Additional guidance
7	(a)	4	B1	for 4	Condone (0,4) or 0,4
	(b)	$(3, -5)$	B1	cao	
	(c)	5.1 to 5.3 and 0.7 to 0.9	M1	for a correct method, eg marking both intercepts with x-axis **or** one correct solution	**Accept** both solutions given as a coordinate for M1 eg (5.2, 0.8) **or** (0.8, 5.2) **or** (5.2, 0) **and** (0.8, 0)
			A1	for answers in the range 5.1 to 5.3 and 0.7 to 0.9	
8		12.5	M1	for $135 - 120 \ (= 15)$ **or** $\frac{135}{120} \ (= 1.125)$ **or** $\frac{135}{120} \times 100 \ (= 112.5)$	
			M1	for "15" $\div 120 \times 100$ **or** "112.5" $- 100$ **or** ("1.125" $- 1) \times 100$	
			A1	cao	
9		Yes with comparisons shown	M1	for starting to manipulate equation eg $y = \frac{3}{6}x + \frac{7}{6}$ or $y = \frac{1}{2}x + \frac{7}{6}$ or $3y = \frac{3}{2}x - 6 \times 3$ or $6y = 3x - 36$	Ignore constant terms for both marks
			A1	for statement and equation(s) which can be used to show that the gradients of the two lines are the same eg $y = \frac{1}{2}x + \frac{7}{6}$ **and** both have a gradient of $\frac{1}{2}$ or Yes, $6y = 3x - 36$ **and** both have the same x coefficients	

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
10	17500	P1	for a process to find the value at the end of year 1, eg 10914.75 ÷ 0.81 (= 13475) **or** 10914.75 ÷ 0.77 (= 14175) **or** for finding the combined multiplier, eg 0.77 × 0.81 (= 0.6237)	
		P1	for a complete process to find the initial value, eg "13475" ÷ 0.77 **or** "14175" ÷ 0.81 **or** 10914.75 ÷ "0.6237"	
		A1	cao	
11	Box plot	B3	for fully correct box plot	Box can be of any height. Accept ends that are marked (eg line, cross, dot) or defined by the end of the whiskers if clear
		(B2	for box plot showing a box and at least 3 correctly plotted values from 24, 42, 54, 64, 96)	
		(B1	for correctly identifying one of the LQ (42) Median (54) or UQ (64) from the CF graph)	May be implied by one of these correct on the box plot
12 (a)	6	M1	for an attempt to evaluate 1.13^n for at least one value of n (with $n > 1$)	1.13, $1.27…$, $1.44…$, $1.63…$, $1.84…$, $2.08…$ May be used with a value Values rounded or truncated to 2dp or better
		A1	6 years coming from finding n such that $1.13^n > 2$	
(b)	Explanation	C1	for explanation	
			Acceptable examples it will decrease the number of years will go down we can't tell (as we don't know how much it is increasing by) it will be an overestimate **Not acceptable examples** it will increase it will be an underestimate	

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13	18.6	M1	for use of Pythagoras eg, $(-5-6)^2 + (8--7)^2$ or $121 + 225$ or 346 or $\sqrt{346}$	
		A1	answer in the range 18.6 to 18.61	If a correct answer within the range is shown in working but incorrectly rounded award full marks

14	Shown	M1	for ($x =$) 1.0622… or ($10x =$) 10.622… or ($100x =$) 106.22… or ($1000x =$) 1062.2…
			OR
			for ($x =$) 0.0622… or ($10x =$) 0.622… or ($100x =$) 6.22… or ($1000x =$) 62.2…
				Use of recurring notation acceptable throughout.

		M1	(dep M1) for a method using two recurring decimals that leads to a terminating decimal difference, using correct multiples of x eg ($1000x - 100x =$) 1062.2… − 106.22.. (= 956) or $\dfrac{956}{900}$ **OR** (dep M1) for a method using two recurring decimals that leads to a terminating decimal difference, using correct multiples of x eg ($1000x - 100x =$) 62.2… − 6.22... (= 56) or $\dfrac{56}{900}$	
		A1	for completing algebra to $1\dfrac{14}{225}$	

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15 (a)	70	P1	for $\dfrac{20}{12}$ (= 1.66..) or $\dfrac{12}{20}$ (= 0.6) or $\dfrac{12}{42}$ (= 0.2857..) or $\dfrac{42}{12}$ (= 3.5)	Decimal values truncated or rounded to 2 dp or more
		P1	for $\dfrac{20}{n} = \dfrac{12}{42}$ **or** $\dfrac{12}{20} = \dfrac{42}{n}$ **or** $\dfrac{20 \times 42}{12}$	
		A1	cao	
(b)	Explanation	C1	for explanation **Acceptable examples** the sample size cannot be greater than the population the population is greater than the sample size there are more than 50 rabbits he catches 55 rabbits **Not acceptable examples** the sample size is too small some of the tags could fall off he has underestimated	
16	$y \geq 3x + 6$	M1	for $y = 6$ indicated **or** $x = -3$ indicated	Accept any inequality in place of "=" for all method marks
	$x \geq -3$	M1	for $y = 3x + 6$ oe indicated	Equations/inequalities may be seen on the diagram
	$y \geq -\dfrac{x}{2} + 1$	M1	for $y = -\dfrac{x}{2} + 1$ oe indicated	
	$y \leq 6$	A1	for $y \geq 3x + 6$ oe, $x \geq -3$, $y \geq -\dfrac{x}{2} + 1$ oe and $y \leq 6$	

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
17	3.6	P1	process to find the volume scale factor, eg 1587.762 ÷ 58.806 (= 27) **or** 58.806 ÷ 1587.762 (= 0.037…)	
		P1	process to find the height of **B**, eg 2 × 43.74 ÷ 8.1 (= 10.8) **or** process to find the area of **A,** eg 43.74 ÷ $(\sqrt[3]{\text{"27"}})^2$ (= 4.86) **or** 43.74 × $(\sqrt[3]{\text{"0.037..."}})^2$ (= 4.86)	
		P1	complete process to find height of **A**, eg "10.8" ÷ $\sqrt[3]{\text{"27"}}$ **or** "4.86" × 2 ÷ (8.1 ÷ $\sqrt[3]{\text{"27"}}$)	
		A1	cao	
18	21.3	P1	for $\frac{1}{2}$ × 11.2 × 4.3 × sin (118)	
		A1	answer in the range 21.26 to 21.3	If a correct answer within the range is shown in working but incorrectly rounded award full marks
19	$-\frac{3}{2}$ and $\frac{2}{3}$	M1	for $(2x \pm 3)(3x \pm 2)$ **or** $(6x \pm 4)(x \pm \frac{9}{6})$ **or** $(6x \pm 4)(x \pm \frac{3}{2})$ **or** correct substitution into the quadratic formula, eg $\frac{-5 \pm \sqrt{5^2 - 4 \times 6 \times (-6)}}{2 \times 6}$	
		M1	$(2x + 3)(3x - 2)$ $(6x - 4)(x + \frac{9}{6})$ **or** $(6x - 4)(x + \frac{3}{2})$ **or** $\frac{-5 \pm \sqrt{169}}{12}$ **or** one correct answer	
		A1	oe accept answers of −1.5 and in the range 0.66 to 0.67	

Paper: 1MA1/2H

Question	Answer	Mark	Mark scheme	Additional guidance
20	56	P1	for a correct process to find *AF*, eg $\sqrt{13^2 - 9^2}$ (= 9.38…) **or** $2\sqrt{22}$ **or** $\sqrt{88}$	Decimal values truncated or rounded to 3 sf or more
		P1	for a correct process to find *FH*, eg $\frac{9}{\cos(49)}$ (= 13.7…)	
		P1	for a correct trig statement involving *FAH*, eg $\tan(FAH) = \frac{"13.7…"}{"9.38…"}$	
		A1	answer in the range 55.6 to 56	If a correct answer within the range is shown in working but incorrectly rounded award full marks
21 (a)	1.06	M1	for tangent drawn at *t* =17.5	No tangent drawn at *t*=17.5 scores zero marks
		M1	for a complete method to find the gradient, eg tangent drawn at *t* = 17.5, and 18.5 ÷ 17.5	Use of change in *y* over change in *x* Working may be seen on the diagram
		A1	answer in the range 0.9 to 1.2	Answer of $\frac{10.5}{17.5}$ oe scores no marks Accept answers in the form *a*/*b* where *a* and *b* are integers
(b)	Explanation	C1	suitable explanation, eg the rate of change of volume	If units are given they must be correct.
22	$\dfrac{x^3 - 3}{2}$	M1	for (h(*x*)) = $\sqrt[3]{2x + 3}$	
		M1	for a correct first step to find the inverse of [h(*x*)]	[h(*x*)] must be their composite function and cannot be either $\sqrt[3]{x}$ or 2*x* + 3
		A1	oe	

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
23	20	B1	stating bound, eg 10.65 **or** 10.55 **or** 31 min 48.5sec **or** 31 min 47.5sec **or** 1908.5sec **or** 1907.5sec	
		P1	(dep on B1) for a correct bound for time in hours, eg 0.5301(38…) **or** 0.5298(61…) **Or** a correct process to find one bound for speed in km per minute eg [UB of S] = [UB of D]÷[LB of T] or [LB of S] = [LB of D]÷[UB of T] or a correct process to find one bound for speed in km per second eg [UB of S] = [UB of D]÷[LB of T] or [LB of S] = [LB of D]÷[UB of T]	Bound rounded or truncated to 4 dp Where 10.6 < [UB of D] ≤ 10.65 **and** 31 min 47.5 sec ≤ [LB of T] < 31 min 48 sec **Or** 10.55 ≤ [LB of D] < 10.6 **and** 31 min 48 sec < [UB of T] ≤ 31 min 48.5 sec Where 10.6 < [UB of D] ≤ 10.65 **and** 1907.5 sec ≤ [LB of T] < 1908 sec **Or** 10.55 ≤ [LB of D] < 10.6 **and** 1908 sec < [UB of T] ≤ 1908.5 sec
		P1	(dep on P1) for correct process to find one bound for speed in km per hour, eg [UB of S] = [UB of D]÷ 0.5298(61…) **or** [LB of S] = [LB of D]÷ 0.5301(38…) **OR** Correct process to convert a bound for speed in km per minute to km per hour eg [UB of S] = [UB of D]÷[LB of T] × 60 **or** [LB of S] = [LB of D]÷[UB of T] × 60 **OR** Correct process to convert a bound for speed in km per second to km per hour eg [UB of S] = [UB of D]÷[LB of T] × 60 × 60 **or** [LB of S] = [LB of D]÷[UB of T] × 60 × 60	Time used in hours Where 10.6 < [UB of D] ≤ 10.65 **and** 31 min 47.5 sec ≤ [LB of T] < 31 min 48 sec **Or** 10.55 ≤ [LB of D] < 10.6 **and** 31 min 48 sec < [UB of T] ≤ 31 min 48.5 sec Where 10.6 < [UB of D] ≤ 10.65 **and** 1907.5 sec ≤ [LB of T] < 1908 sec **Or** 10.55 ≤ [LB of D] < 10.6 **and** 1908 sec < [UB of T] ≤ 1908.5 sec
		A1	for both correct bounds from correct working, 20.099… **and** 19.900…	Figures rounded or truncated to 3 sf or better
		C1	for 20 correct to 2 significant figures as both bounds agree.	

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
24	$6x + 8y = 35$	M1	for a process to find the gradient of the radius, eg $\frac{2.8-0}{2.1-0}$ $(=\frac{4}{3})$	
		M1	for process to find the gradient of the tangent, eg uses $\frac{-1}{"m"}$	
		M1	for substitution of (2.1, 2.8) into $y = "\frac{-3}{4}"x + c$ or into $(y - y_1) = "\frac{-3}{4}"(x - x_1)$	
		A1	oe as long as in the form $ax + by = c$, where a, b and c are integers	

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

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.
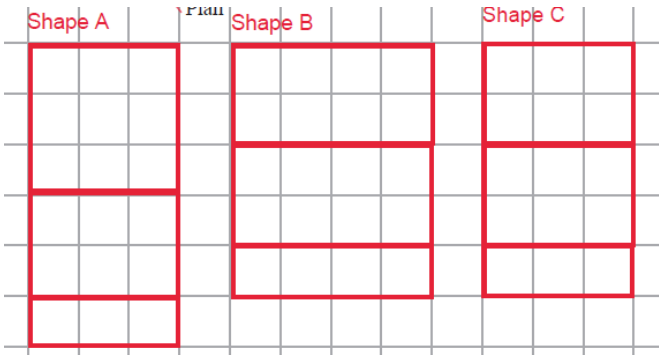Notes apply to both MLP papers and Braille papers unless otherwise stated.

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

PAPER: 1MA1_2H		
Question	**Modification**	**Mark scheme notes**
1	Wording added 'Look at the diagram for Question 1 in the Diagram Booklet.' Diagram enlarged and intermediates marked. Crosses changed to dots. Axes labels moved above the vertical axis and left on the horizontal axis. Open headed arrows. Small squares removed.	Standard mark scheme but in part (c) widen the range to consider 2.5 to 4.5
2	Wording added 'Look at the diagram for Question 19 in the Diagram Booklet. It shows a grid with shapes.' The wording 'and the plan of a solid are shown on the grid' removed and replaced with 'of a solid is shown in the Diagram Booklet.' The wording 'On the grid, draw the' removed and replaced with 'Choose which of the shapes A to C shows the side elevation of the solid from the direction of the arrow. 'Front elevation' and 'Plan' labels moved above. Shapes labelled 'Shape A' to 'Shape C'. Grid and diagrams enlarged. Shape outlines made thicker. Open headed arrow. Arrow made thicker. Model provided. 	Shape C is the correct shape for 2 marks. The dotted line was removed to avoid confusion to visually impaired candidates.
3	The wording 'Here' removed and replaced with 'Below'. Terms left aligned	Standard mark scheme
4	Wording added 'Look at the diagram for Question 4 in the Diagram Booklet.' Diagram enlarged. Dashed lines made longer and thicker. Right angles made more obvious. Wording added: 'All the marked angles are right angles.' 'AB = 11 metres'; 'BC = 7 metres'; 'DE = 7 metres'; 'EF = 9 metres'	Standard mark scheme

PAPER: 1MA1_2H			
Question		Modification	Mark scheme notes
5		Wording added 'Look at the diagram for Question 5 in the Diagram Booklet. It shows shape ABC.' Shape labelled with A, B and C. Wording added: 'ABC is the right angle'; 'AC = 14.5 cm'; 'BC = x cm'; 'angle ACB = 53º Diagram enlarged. Right angle made more obvious. Angle moved outside smaller angle arc.	Standard mark scheme
7		Wording added 'Look at the diagram for Question 7 in the Diagram Booklet.' The wording 'Here is' removed and replaced with 'It shows'. Diagram enlarged and intermediates marked. Axes labels moved above the vertical axis and right on the horizontal axis. Open headed arrows. Small squares removed.	Standard mark scheme
9		Equations stacked vertically and left aligned.	Standard mark scheme
11		Wording added 'Look at Diagram 1 and Diagram 2 for Question 11 in the Diagram Booklet.' Wording added 'in Diagram 1 of the Diagram Booklet'. Graphs enlarged. Axes labels moved to above the vertical axis and left on the horizontal axes. Right axis labelled on Diagram 1. Small squares removed. Open headed arrows. Curve values changed to pass through grid lines (20,0), (40,15), (50,30), (65,45) and (90,60). Information left aligned. Values changes: 24 to 20; 96 to 90 Wording added 'in Diagram 2 of the Diagram Booklet'.	Standard mark scheme but B1 changed to correctly identifying one of the LQ (40) Median (50) or UQ (65) from the CF graph and the box plot drawn with lower value 20 and upper value 90
12		Equation left aligned.	Standard mark scheme
16		Wording added 'Look at the diagram for Question 16 in the Diagram Booklet.' Wording added 'in the Diagram Booklet'. Axes labels moved to above the vertical axis and right on the horizontal axis. Diagram enlarged. Shading changed. Graph lines thickened. Open headed arrows.	Standard mark scheme
17		Wording added 'Look at the diagram for Question 17 in the Diagram Booklet. You may be provided with models. They are not accurate.' The wording 'The diagram shows' removed and replaced with 'The diagram and the models show'. Diagrams enlarged, stacked vertically and left aligned. Right angles made more obvious. Shading changed. Models provided with labels.	Standard mark scheme

PAPER: 1MA1_2H			
Question		**Modification**	**Mark scheme notes**
18		Wording added 'Look at the diagram for Question 18 in the Diagram Booklet.' The wording 'Here is' removed and replaced with 'It shows'. Diagram enlarged and made horizontal along the longest side. Triangle points labelled A, B and C. Angle moved outside angle arc and arc made smaller. Wording added: 'AB = 11.2 cm'; 'BC = 4.3 cm'; 'Angle ABC = 118º'	Standard mark scheme
20		Wording added 'Look at Diagram 1, Diagram 2 and Diagram 3 for Question 20 in the Diagram Booklet. You may be provided with a model. It is not accurate.' Diagram 2 and Diagram 3 added. Thick line AH added to Diagram 1 and angle arc. Diagrams enlarged. Dashed lines made	Standard mark scheme
21		Wording added 'Look at the diagram for Question 21 in the Diagram Booklet.' Diagram enlarged. Small squares removed. Axes labels moved above the vertical axis and left on the horizontal axis. Curve moved down to pass through (17.5,10) to allow visually impaired students to use grid lines. Right axis labelled.	Standard mark scheme