Mark Scheme (Results)

Summer 2025

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

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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 × 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" × 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] × 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

Question		Answer	Mark	Mark scheme	Additional guidance
1		6	M1	for a complete factor tree for 54 or 120 with no more than one arithmetic error	Condone the inclusion of 1 for this mark
				or for listing at least 4 correct factors (with no more than 1 incorrect) of 54 or 120, could be in factor pairs	Factors of 54: 1, 2, 3, 6, 9, 18, 27, 54 Factors of 120: 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120
				or for the prime factors of 54 (2, 3, 3, 3) or 120 (2, 2, 2, 3, 5)	Prime factors may be seen in a diagram eg a Venn diagram
			A1	cao	
				SCB1 for an answer of 2 or 3 or 2 × 3 if M0 scored	
2	(a)	0.4	P1	for $1 - 0.3 - 0.1$ (= 0.6) **or** $0.3 + 0.1 + 2x + x = 1$	Award this mark for any two probabilities that sum to 0.6
			P1	for "0.6" ÷ 3 (= 0.2) **or** $3x =$ "0.6" **or** for "0.6" ÷ 3 × 2	Allow P1P1A0 for P(green) = 0.4 Award P1P1A0 for 0.4 with incorrect subsequent working eg $\dfrac{0.4}{0.6}$
			A1	for 0.4 oe	If no answer on answer line then check table A0 for $\dfrac{0.4}{1}$
	(b)	150	M1	for complete method to find the total number of counters eg 45 ÷ 0.3 or 45 ÷ 3 × 10 oe or $45 + 45 \div 3 + 45 \div 3 \times 4 + 45 \div 3 \times 2$ (= 45 + 15 + 60 + 30)	ft their table
			A1	cao	

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
3 (a)	(2),–2,(–4), –4, –2, 2	B2	for all 4 values correct	
		(B1	for 2 or 3 correct values)	
(b)	Graph drawn	B2	for a fully correct graph	Accept a freehand curve drawn that is not made of line segments Curve must not have a horizontal segment between (–1, –4) and (0, –4) Ignore anything drawn outside the required range
		(B1	ft (dep on B1 in (a)) for plotting at least 5 of the points from their table correctly)	
(c)	– 0.5, – 4.25	B1	ft their graph with a single turning point or for x coordinate = – 0.5 and y coordinate = – 4.25 oe	

Question		Answer	Mark	Mark scheme	Additional guidance
4	(a)	4.5	P1	for a process to find the number of dark chocolates, eg $280 \times \dfrac{1}{7}$ oe (= 40)	
			P1	for a process to find one part of the ratio for milk chocolates to white chocolates eg (280 – "40") ÷ (1 + 3) (= 60)	
			P1	for a process to find the number of white chocolates, eg "60" × 3 (= 180) or 280 – "40" – "60" (= 180)	Condone milk, white incorrectly labelled
			P1	for a ratio of white chocolates : dark chocolates eg "180" : "40" oe or for a process to find the value of n eg "180" ÷ "40"	Labels not required for this mark, but if seen must be correct Must be a 2-part ratio Allow "40" : "180" if labelled as dark chocolate : white chocolate oe
			A1	(dep P3) for 4.5 oe	A correct answer with no supportive working gets 0 marks Condone answer of 4.5 : 1
	(b)	No with reason	C1	for No with reason **Acceptable examples** No, the number of dark chocolates and white chocolates has not changed No, the ratio of n:1 only involved white and dark chocolates No, eating milk chocolates doesn't change the rest No, the ratio of dark to white chocolates doesn't change **Not acceptable examples** Yes,… No, it doesn't matter how many milk chocolates are eaten No, the number of white chocolates doesn't change No, the number of dark chocolates doesn't change	Reason must refer to or imply both dark and white chocolates

Question	Answer	Mark	Mark scheme	Additional guidance
5	1.037×10^4	M1	for 570 or 9800 or 0.57×10^3 or 98×10^2	
		A1	for 10370 oe eg 10.37×10^3 or 103.7×10^2	
		A1	for 1.037×10^4	
6	12	P1	for (interior angle =) $(180 \div 3) + (360 \div 4)$ $(= 150)$	150 may be seen on diagram.
		P1	for (exterior angle =) $180 -$ "150" $(= 30)$ **or** for "150" $= \dfrac{(n-2)\times 180}{n}$ oe	May be seen on diagram Exterior angle of 30 implies P1P1
		P1	for $360 \div$ "30" **or** for a correct process to solve the equation as far as "30"$n = 360$	
		A1	cao	A correct answer with no supportive working gets 0 marks Minimum supportive working is P1P1 or **Trials of interior angle sum** Finding $1800 \div 150 = 12$ oe with 12 as answer scores P1P1P1A1

Question		Answer	Mark	Mark scheme	Additional guidance
7	(a)	$6 - 3m$	B1	for $6 - 3m$ oe	Accept $3(2 - m)$
	(b)	$x \geq 10$	M1	for a correct first step working with an inequality or an equation, eg $7 + x + 8 \leq \dfrac{5x}{2} - 8 + 8$ or $15 + x \leq \dfrac{5x}{2}$ **or** $7 + x - x \leq \dfrac{5x}{2} - 8 - x$ or $7 \leq \dfrac{3x}{2} - 8$ **or** $7 \times 2 + x \times 2 \leq \dfrac{5x}{2} \times 2 - 8 \times 2$ or $14 + 2x \leq 5x - 16$	Can work with an equation or incorrect inequality symbol for both M marks For M marks step must be carried out not just intention shown. For example, if you see $7 + x \leq \dfrac{5x}{2} - 8$ $+8$ $+8$ award M1 for $k + x \leq \dfrac{5x}{2}$ where $k > 7$ or indicating $-x$ and reaching $7 \leq kx - 8$ where $k < \dfrac{5}{2}$ or indicating multiplying by 2 and obtaining an equation or inequality with no more than one term incorrect and no term unchanged.
			M1	(dep M1) for a correct second step, eg subtracts x from both sides or adds 8 to both sides or subtracts $2x$ from both sides or multiplies both sides by 2 **or** gives the critical value of 10	The first 2 marks can be awarded for critical value of 10, eg $x = 10$
			A1	for $x \geq 10$ as final answer	Accept $10 \leq x$

Question	Answer	Mark	Mark scheme	Additional guidance

7 (c)	$2.5 < y < 4$	M1	for a correct first step,
			
			eg $9 - 4 < 2y < 12 - 4$ or $5 < 2y < 8$
			
			or $9 \div 2 < y + 2 < 12 \div 2$ or $4.5 < y + 2 < 6$
			
			or showing 2.5 and 4 as the critical values
				For M mark condone use of "=" and incorrect inequality signs
				
				For M mark step must be carried out not just intention shown.
				For example, if you see
				   $9 < 2y + 4 < 12$
				-4 -4 -4
				award M1 for $a < 2y < b$ where $a < 9$ and $b < 12$
				
				or if you see
				   $9 < 2y + 4 < 12$
				$\div 2$ $\div 2$ $\div 2$
				award M1 for $a < y + 2 < b$ where $a < 9$ and $b < 12$

		A1	for $2.5 < y < 4$ oe as final answer	Accept $y > 2.5$ and $y < 4$ oe

Question		Answer	Mark	Mark scheme	Additional guidance
8	(a)	Proof	M1	for identifying angle A as common **or** for angle AED = angle ACB or angle ADE = angle ABC with appropriate reason(s) eg <u>corresponding angles</u> are equal or <u>co-interior angles</u> add up to 180 and <u>angles</u> on a straight <u>line</u> add up to 180	
			C1	for completing the proof by identifying a second pair of equal angles with appropriate reason(s) **and** a statement that the angles in each triangle are the same	Statement can be implied by identifying a third pair of equal angles (no reason needed)
	(b)	6	P1	for a scale factor of 1.5 or $\dfrac{2}{3}$ oe **or** for $\dfrac{AE}{20} = \dfrac{18}{30}$ oe	
			P1	for a process to find the length of AE, eg $18 \div 1.5 \ (= 12)$ oe **or** $(AE =)\dfrac{20 \times 18}{30}$ oe **or** for a complete process to find the length of EC, eg $18 \times (1 - \dfrac{2}{3})$ oe	
			A1	cao	
9	(a)	Rotation 90° (anticlockwise) about (− 1, 0)	B2	for rotation 90° (anticlockwise) about (− 1, 0)	Accept 270° clockwise Award no marks if more than one transformation is given
			(B1	for any 2 of the 3 aspects)	
	(b)	Enlargement	B2	for correct enlargement with vertices at (1,0), (3,0), (1,2)	Award for clear intention, shading not needed
			(B1	for correct size and orientation but incorrect position **or** 2 out of 3 vertices correctly placed)	

Question	Answer	Mark	Mark scheme	Additional guidance
10	Proof	M1	for writing expressions for two consecutive even numbers, eg $2n$ and $2n + 2$ or $2n - 2$ and $2n$ or $2n + 2$ and $2n + 4$ oe (assuming n is any integer)	For both M marks accept use of linear expressions with a difference of 2, eg n and $n + 2$ or $n + 1$ and $n + 3$
		M1	(dep M1) for correctly expanding the squares of both expressions, eg $(2n + 2)^2 = 4n^2 + 4n + 4n + 4$ and $(2n)^2 = 4n^2$ or $(2n)^2 = 4n^2$ and $(2n - 2)^2 = 4n^2 - 4n - 4n + 4$ or $(2n + 4)^2 = 4n^2 + 8n + 8n + 16$ and $(2n + 2)^2 = 4n^2 + 4n + 4n + 4$ **or** for a correct expression using the difference of two squares eg $(2n + 2 + 2n)(2n + 2 - 2n)$ oe or $(2n + 2n - 2)(2n - (2n - 2))$ oe	Expressions need not be simplified for this mark
		C1	for a complete proof without any errors leading to eg $4(2n + 1)$ or $4(2n - 1)$ or to a statement that eg $8n + 4$ is a multiple of 4 because $8n$ and 4 are both multiples of 4	$4n^2 + 8n + 4 - 4n^2 = 8n + 4$ $4n^2 - (4n^2 - 8n + 4) = 8n - 4$ Accept eg $(2n)^2 - (2n + 2)^2$ $= 4n^2 - (4n^2 + 4n + 4n + 4)$ $= -8n - 4$ $= 4(-2n - 1)$ A proof using eg n and $n + 2$ must include a statement that n is even for the C mark to be awarded and a proof using eg $n + 1$ and $n + 3$ must include a statement that n is odd

Question	Answer	Mark	Mark scheme	Additional guidance
11	125	P1	for setting up an equation with a constant term, eg $T = \dfrac{k}{w}$ or $w = K\sqrt[3]{d}$	Condone the use of 'α' instead of '=' for the first two P marks Equation can be implied by correct substitution
		P1	for a process to substitute values in one equation, eg $20 = \dfrac{k}{6}$ or $k = 120$ or $1 = K\sqrt[3]{8}$ or $K = \dfrac{1}{2}$ oe	
		P1	(dep P2) for combining the two equations ft their values of k and K, eg $T = \dfrac{"120"}{"\frac{1}{2}"\sqrt[3]{d}}$ oe **OR** for a correct process to find the value of w when $T = 48$, eg $w = \dfrac{"120"}{48}$ $(= 2.5$ oe$)$	$T = \dfrac{120}{w}$ $\quad$ $w = \dfrac{1}{2}\sqrt[3]{d}$
		P1	for substitution into their formula, eg $48 = \dfrac{"120"}{"\frac{1}{2}"\sqrt[3]{d}}$ **OR** for substitution of found value of w in the equation for d, eg $"2.5" = "\frac{1}{2}"\sqrt[3]{d}$	
		A1	cao	

Question		Answer	Mark	Mark scheme	Additional guidance
12	(a)(i)	10	M1	for a tangent drawn at $t = 3$	A tangent must be seen to award any marks
			M1	for a complete method to find the gradient from tangent, eg $\frac{30}{3}$	This mark can be awarded if the tangent is drawn at $t \neq 3$
			A1	for answer in the range 8.5 to 11.5 or ft acceptable tangent at $t = 3$	Accept answers in the form $\frac{a}{b}$ where a and b are integers Award 0 marks for a correct answer (in the range) with no (or incorrect) supportive working
	(ii)	Acceleration or rate of change of velocity	C1	for a correct explanation **Acceptable examples** acceleration rate of change of velocity increase in velocity each second how quickly the velocity increases increase in velocity over time the rate at which the particle is accelerating **Not acceptable examples** rate of change increase in velocity the velocity per second velocity ÷ time as time increases so does the velocity how steep the line is the acceleration of the particle and how far it got	Award if extra information is given provided not contradictory or incorrect Accept 'speed' for 'velocity'

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12 (b)	220	M1	for a method to find an appropriate area, eg $\frac{1}{2} \times 30 \times 2 \, (= 30)$ oe or $\frac{1}{2}(30 + 50) \times (4 - 2) \, (= 80)$ oe or $\frac{1}{2} \times (50 + 60) \times (6 - 4) \, (= 110)$ oe **or** for a method to find an estimate for the area of at least one rectangle with height at intersection of midpoint and curve, eg $2 \times 16 \, (= 32)$ oe or $2 \times 42 \, (= 84)$ oe or $2 \times 56 \, (= 112)$ oe	Must have one correct expression for the award of this mark May be seen as a rectangle added to a triangle
		M1	for a complete method, eg $\frac{1}{2} \times 30 \times 2 + \frac{1}{2}(30 + 50) \times 2 + \frac{1}{2}(50 + 60) \times 2$ or $\frac{1}{2} \times 2 \times (0 + 60 + 2(30 + 50))$ **or** $2 \times 16 + 2 \times 42 + 2 \times 56$	Allow 1 error in v values used
		A1	for 220 or 228	Allow 228 only if it comes from rectangle/midpoint method

| Question	Answer	Mark	Mark scheme	Additional guidance
13	$\dfrac{5}{33}$	M1	for $10x = 2.\dot{2}$ or $2.22\ldots$ or $(10x - x =)\ 2.\dot{2} - 0.\dot{2}\ (= 2)$ or $2.22\ldots - 0.22\ldots\ (= 2)$ or $\dfrac{2}{9}$ oe fraction	eg $\dfrac{20}{90}$, $\dfrac{22}{99}$
		M1	for a method using two recurring decimals that leads to a terminating decimal difference, using correct multiples of y eg $(1000y - 10y =)\ 681.\dot{8}\dot{1} - 6.\dot{8}\dot{1}\ (= 675)$ or $681.81\ldots - 6.81\ldots\ (= 675)$ or $\dfrac{675}{990}$ or $(100y - y) = 68.\dot{1}\dot{8} - 0.6\dot{8}\dot{1}\ (= 67.5)$ or $68.181\ldots - 0.681\ldots\ (= 67.5)$ or $\dfrac{67.5}{99}$	
		A1	for $(x =)\dfrac{2}{9}$ oe **and** $(y =)\dfrac{675}{990}$ oe	Accept $(y =)\dfrac{67.5}{99}$
		M1	for " $\dfrac{2}{9}$ " $\times$ " $\dfrac{675}{990}$ "	Award 4 marks for an answer equivalent to $\dfrac{5}{33}$, eg $\dfrac{15}{99}$, $\dfrac{135}{891}$, $\dfrac{1350}{8910}$ unless from incorrect working
		A1	cao	

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
14	No (supported)	P1	for P(OO) = $\frac{5}{9} \times \frac{4}{8}$ (= $\frac{20}{72}$) **or** P(OE) = $\frac{5}{9} \times \frac{4}{8}$ (= $\frac{20}{72}$) **or** P(EO) = $\frac{4}{9} \times \frac{5}{8}$ (= $\frac{20}{72}$) **or** P(EE) = $\frac{4}{9} \times \frac{3}{8}$ (= $\frac{12}{72}$)	Accept equivalent probabilities throughout
		P1	for P(OO) = $\frac{5}{9} \times \frac{4}{8}$ (= $\frac{20}{72}$) **and** P(EE) = $\frac{4}{9} \times \frac{3}{8}$ (= $\frac{12}{72}$) **OR** for P(OE) = $\frac{5}{9} \times \frac{4}{8}$ (= $\frac{20}{72}$) **and** P(EO) = $\frac{4}{9} \times \frac{5}{8}$ (= $\frac{20}{72}$) **and** P(EE) = $\frac{4}{9} \times \frac{3}{8}$ (= $\frac{12}{72}$)	
		P1	for a process to find probability of sum being even, eg P(OO) + P(EE) = $\frac{5}{9} \times \frac{4}{8}$ + $\frac{4}{9} \times \frac{3}{8}$ (= $\frac{32}{72}$)	Sample space diagram or listing: Award P3 for P(sum even) = $\frac{32}{72}$ or P(product even) = $\frac{52}{72}$, P4 for both
		P1	for a process to work with probability of product being even, eg P(EO) + P(OE) + P(EE) = $\frac{4}{9} \times \frac{5}{8}$ + $\frac{5}{9} \times \frac{4}{8}$ + $\frac{4}{9} \times \frac{3}{8}$ (= $\frac{52}{72}$) or 1 − P(OO) = 1 − $\frac{5}{9} \times \frac{4}{8}$ (= $\frac{52}{72}$)	
		C1	for No supported by correct probabilities, eg $\frac{32}{72}$ **and** $\frac{52}{72}$ SC B2 for $\frac{41}{81}$ **and** $\frac{56}{81}$ **and** No SC B1 for $\frac{41}{81}$ **and** $\frac{56}{81}$ with no decision or incorrect decision	

Question	Answer	Mark	Mark scheme	Additional guidance
15	$\dfrac{130}{400}$ oe	M1	for a method to find the frequency (or area) of one relevant interval, eg 3 × 10 (= 30) or 5 × 20 (= 100) or 8 × 15 (= 120) or 10 × 15 (= 150) or 5 × 10 (= 50) or 8 × 10 (= 80) or, using 1 cm^2 = 1 unit, 3 × 2 (= 6) or 5 × 4 (= 20) or 8 × 3 (= 24) or 10 × 3 (= 30) or 5 × 2 (= 10) or 8 × 2 (= 16)	Evidence for this mark may be seen on the diagram Accept equivalent methods For M marks condone use of 2.5 for fd of 3 and/or 4.5 for fd of 5
		M1	for a method to find the total frequency (or area), eg "30" + "100" + "120" + "150" (= 400) or "6" + "20" + "24" + "30" (= 80)	
		M1	for a method to find the frequency (or area) between 20 g and 40 g, eg "50" + "80" (= 130) or "10" + "16" (= 26)	
		A1	for $\dfrac{130}{400}$ oe	Accept any equivalent fraction, decimal form, 0.32(5) or 0.33 or percentage form, 32.(5)% or 33%

Question	Answer	Mark	Mark scheme	Additional guidance
16 (a)	$5\sqrt{7}$	M1	for $\dfrac{35}{\sqrt{7}}\times\dfrac{\sqrt{7}}{\sqrt{7}}\ (=\dfrac{35\sqrt{7}}{7})$ or $\dfrac{35}{\sqrt{7}}\times\dfrac{-\sqrt{7}}{-\sqrt{7}}\ (=\dfrac{-35\sqrt{7}}{-7})$	
		A1	for $5\sqrt{7}$ or $\sqrt{175}$	
(b)	$a = 7, b = 5$	B1	for $\sqrt{27}=3\sqrt{3}$ or $2\sqrt{27}=6\sqrt{3}$	B1 can be awarded whenever this is seen, which might be later in the process.
		P1	for process to rationalise the denominator, eg $\dfrac{\sqrt{27}-1}{2-\sqrt{3}}\times\dfrac{2+\sqrt{3}}{2+\sqrt{3}}$ or $\dfrac{3\sqrt{3}-1}{2-\sqrt{3}}\times\dfrac{2+\sqrt{3}}{2+\sqrt{3}}$ oe	
		P1	(dep on previous P1) for expanding terms, condone one error in numerator or denominator, eg $\dfrac{2\sqrt{27}+\sqrt{27}\sqrt{3}-2-\sqrt{3}}{4+2\sqrt{3}-2\sqrt{3}-\sqrt{3}\sqrt{3}}$ or $\dfrac{6\sqrt{3}+3\sqrt{3}\sqrt{3}-2-\sqrt{3}}{4+2\sqrt{3}-2\sqrt{3}-\sqrt{3}\sqrt{3}}$ or $6\sqrt{3}+9-2-\sqrt{3}$ oe	
		A1	for $a = 7, b = 5$	Accept $7+5\sqrt{3}$

Question	Answer	Mark	Mark scheme	Additional guidance
17	Shown	M1	for method to finding gh(x), eg gh(x) = 1 – 3($2x^2$ – 1)	= 1 – $6x^2$ + 3 = 4 – $6x^2$
		M1	for method to find hg(x), eg hg(x) = 2(1 – $3x$)^2 – 1	= 2(1 – $3x$ – $3x$ + $9x^2$) – 1 = 2 – $12x$ + $18x^2$ – 1 = 1 – $12x$ + $18x^2$
		M1	(dep M2) for method to find 3gh(x) + hg(x) eg 3(1 – 3($2x^2$ – 1)) + 2(1 – $3x$)^2 – 1 (= 0)	Expressions for gh(x) and hg(x) may have been incorrectly expanded and simplified
		M1	for expanding all brackets as far as at least 3 – $18x^2$ + 9 + 2 – $12x$ + $18x^2$ – 1 (= 0)	Need not be fully simplified but must be correct
		C1	for reducing to a linear equation eg 13 – $12x$ = 0 and stating that this gives just one solution or stating $x = \dfrac{13}{12}$ oe	

Question 9(b)
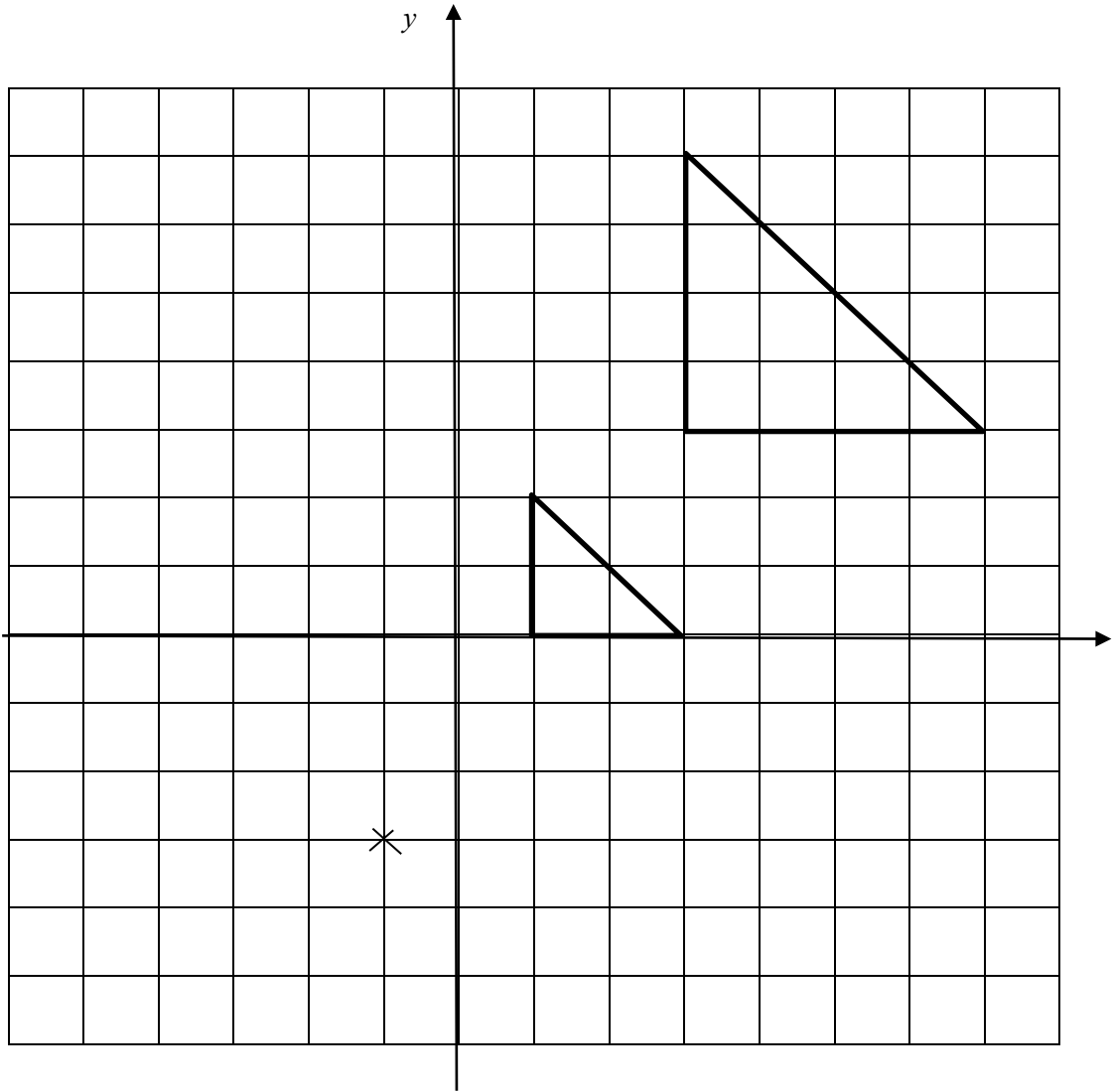
Modifications to the mark scheme for Modified Large Print (MLP) papers: 1MA1 1H

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

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

Angles: ±5º

Measurements of length: ±5 mm

PAPER: 1MA1_1H			
Question		Modification	Mark scheme notes
2		Wording added: Look at the table for Question 2 in the Diagram Booklet.	Standard mark scheme
3	(a)	Wording added: 'below'. Wording added: 'There are four spaces to fill.' Braille: Wording added 'by writing the missing values labelled (i) to (iv).' Table turned vertical.	Standard mark scheme
	(b)	Wording added: 'Look at the diagram for Question 3(b) in the Diagram Booklet. It shows a grid.' Diagram enlarged. Open headed arrows. Braille: Wording added 'Drawing film and bumpons are provided if you wish to use them.'	Standard mark scheme
6		Wording added: 'Look at the diagram for Question 6 in the Diagram Booklet.' Diagram enlarged.	Standard mark scheme
7		Letter x changed to p.	Standard mark scheme but note change of letter
8		Wording changed: 'Look at the diagram for Question 8 in the Diagram Booklet. It shows right-angled triangle ABC.' Wording added: 'Angle ACB is a right angle.' Diagram enlarged. Open headed arrows.	Standard mark scheme
	(b)	Horizontal list turned vertical.	

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Question		**Modification**	**Mark scheme notes**
9	(a)	Wording added: 'Look at the diagram for Question 9(a) in the Diagram Booklet. It shows shape A and shape B on a grid.' Wording added: 'An accurate cutout shape may be available if you wish to use it.' Diagram enlarged. Open headed arrows. Shapes labelled 'shape A' and 'shape B' Cutout shape provided.	Standard mark scheme
9	(b)	Wording added: 'Look at the diagram for Question 9(b) in the Diagram Booklet. It shows triangle A and triangle B on a grid.' Wording changed: 'Describe fully the single transformation that maps triangle A onto triangle B. Two accurate cutout shapes may be available if you wish to use them.' Diagram enlarged. Open headed arrows. Triangle A moved up by one square. Triangle B added. Shapes labelled 'triangle A' and 'triangle B' Horizontal axis cropped so it starts at -3. Two cutout shapes provided.	C2 for enlargement, scale factor $\frac{1}{2}$ oe , centre (–1, –2) (C1 for 2 of the 3 aspects) Award no marks if more than one transformation is given
11		Letter d changed to p.	Standard mark scheme but note change of letter
12		Wording changed: 'Look at the diagram for Question 12 in the Diagram Booklet. It is a graph showing…' Diagram enlarged (2 cm squares). Open headed arrows. Intermediates added on both axes. Braille: Diagram enlarged (3 cm squares) with no intermediates.	Standard mark scheme
15		Wording changed: 'Look at the diagram for Question 15 in the Diagram Booklet. It is a histogram giving information...' Diagram enlarged. Open headed arrows.	Standard mark scheme
16	(b)	Letters changed: 'a' to 'p' and 'b' to 'q'.	Standard mark scheme but note change of letters