Pearson

Mark Scheme (Results)

November 2024

Pearson Edexcel GCSE
In Mathematics (1MA1)
Higher (Calculator) Paper 3H

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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

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
1	Points plotted at (130, 12) (150, 28) (170, 30) (190, 22) (210, 8) and joined with line segments	B2 (B1	for correct plotting of 5 points and joining with line segments for points plotted correctly at midpoints **or** for a frequency polygon with one point incorrect **or** for a frequency polygon with first and last point joined directly **or** for joining the points with line segments at the correct heights consistent within intervals (including end points))	Ignore any histogram drawn Ignore any part of the frequency polygon outside of the range of the first and last point plotted. for example, at 120, 140, 160, 180, 200 or at 140, 160, 180, 200, 220
2 (a)	340 200	B1	cao	
(b)	8.026×10^{-1}	B1	cao	
3	Drawn	B2 (B1	for a correct construction with all relevant arcs drawn for all relevant arcs drawn **or** for a bisector within guidelines but with no or insufficient arcs)	
4 (a)	(0.3) 0.7 0.3 0.7 0.3 0.7	B2 (B1	all probabilities correctly placed for 0.7 correctly placed for Game 1)	Accept equivalent fractions or percentages for probabilities
(b)	0.49	M1 A1	for a correct method, ft their tree diagram eg 0.7×0.7 only oe, ft their tree diagram	ft their diagram provided probabilities are less than 1 An answer of $\frac{0.49}{1}$ scores M1A0 unless 0.49 seen

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
5	45.6	P1	for a process to start to work with the ratio, eg 240 ÷ (3 + 5) (= 30) **or** pens = 3*n* and pencils = 5*n* where *n* is a positive integer	Can work in £ or pence but must be consistent, 90 or 150 imply P1 This mark can be awarded at any stage
		P1	for a complete process to find the number of pens and pencils, eg "30" × 3 (= 90) **and** "30" × 5 (= 150) **OR** for process to find one cost or amount to sell for one item eg [pens] × 9 (= 810) **or** [pens] × 11 (= 990) **or** [pencils] × 6 (= 900) **or** [pencils] × 10 (= 1500) **OR** process to find the profit for one pen or one pencil eg 11 – 9 (= 2) or 10 – 6 (= 4)	[pens] could be "30" × 3 or their number of pens [pencils] could be "30" × 5 or their number of pencils [pens] , [pencils] ≠ 1
		P1	for a process to find the total cost to buy or the total amount to sell for both, eg [pens] × 9 + [pencils] × 6 (=1710) **or** [pens] × 11 + [pencils] × 10 (= 2490) **OR** process to find the profit for one item eg [pens] × 11 – [pens] × 9 (= 180) or [pens] × (11 – 9) (= 180) **or** [pencils] × 10 – [pencils] × 6 (= 600) or [pencils] × (10 – 6) (= 600)	180 or 600 or 780 implies P3 [pens] could be "30" × 3 or their number of pens [pencils] could be "30" × 5 or their number of pencils [pens] , [pencils] ≠ 1
		P1	for a complete process to find the profit as a percentage or a decimal, eg $\frac{[2490]-[1710]}{[1710]}\times 100$ **or** $\frac{[2490]-[1710]}{[1710]}(=0.456...)$ **or** for a process to find the amount to sell as a percentage of the cost eg $\frac{[2490]}{[1710]}\times 100$ $(=145.6...)$	[2490] is their amount to sell for both pens and pencils [1710] is their cost of pens and pencils [2490] – [1710] may be [180] + [600]
		A1	answer in the range 45.6 to 45.62	If an answer is given in the range in working and then rounded incorrectly award full marks. A correct answer with no supportive working gets 0 marks

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
6	Comparison	B1	for correctly identifying the median of (School) A as 57	
		C1	(ft, dep on value for the median being stated) for making a correct comparison of median eg 'the median of (School) A is higher than the median of (School) B'	If median for school B is stated in the comparison it must be correct
		B1	for correctly identifying the range of (School) A as 49	
		C1	(ft, dep on value for the range being stated) for making a correct comparison of range eg 'the range of (School) A is higher than the range of (School) B'	If range for school B is stated in the comparison it must be correct
7	10.2 and 10.3	B1	for 10.2 in the correct place	
		B1	for 10.3 in the correct place	Accept $10.2\dot{9}$ or 10.299(99…)
8	14.3	M1	for a correct statement for *AB* using trigonometry, eg $\tan 62 = \frac{AB}{7.6}$ **or** (*AB* =) $7.6 \times \tan 62$	
		A1	answer in the range 14.28 to 14.3	If an answer is given in the range in working and then rounded incorrectly award full marks
9 (a)	$14x^5y^6$	B2	cao	
		(B1	for correct simplification of two terms ax^5y^6 **or** $14x^by^6$ **or** $14x^5y^c$ where $a \neq 14$, $b \neq 5$, $c \neq 6$)	Where a, x^b, y^c can be made up of two products Condone inclusion of multiplication signs for B1
(b)	m^{-6}	B1	for m^{-6} or $\frac{1}{m^6}$	

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
10	55	M1	for a complete method eg $46.75 \div 0.85$ oe **or** for a correct equation eg $0.85x = 46.75$ oe **or** 55 seen, then used as part of an extended method eg 8.75 or 101.75	
		A1	accept trailing zeros eg 55.00	
11	304	P1	for start of process to find the arc length eg $34.3 - 2 \times 4.7$ (= 24.9) **or** for forming a suitable equation eg $\frac{\angle AOB}{360} \times \pi \times 2 \times 4.7 + 2 \times 4.7 = 34.3$	Condone omission of the addition of 2 radii in the equation for this mark only eg $\frac{\angle AOB}{360} \times \pi \times 2 \times 4.7 = 34.3$
		P1	for process to isolate the arc length in an equation eg $\frac{\angle AOB}{360} \times \pi \times 2 \times 4.7 = "24.9"$ **or** for complete process to find *AOB* eg $\angle AOB = \frac{"24.9" \times 360}{\pi \times 2 \times 4.7}$	
		A1	answer in the range 303 to 304	If an answer is given in the range in working and then rounded incorrectly award full marks

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12 (a)	4775.38	M1	for a method to find the value after 1 year, eg 4500 × 1.024 (= 4608) oe	
		M1	for a complete method to find the value after 3 years, eg "4608" × 1.018^2 or "4608" × 1.018 (= 4690.944) **and** "4690.944" × 1.018 oe	Award of this mark implies the first M1 May be seen in more than 1 calculation M2A0 is implied by 275.37 or 275.38 Correct answer not rounded to 2dp gains M2A0
		A1	accept 4775.37 SCB1 for 4770 or 4824 if M0 scored	
(b)	26	P1	for a start to the process, eg 4107 ÷ 7500 (= 0.5476)	0.74 implies P1
		P1	for a process to find percentage change eg $\sqrt{"0.5476"} \times 100$ (= 74) or $\left(\sqrt{"0.5476"} - 1\right) \times 100$ (= –26) **or** $1 - \sqrt{"0.5476"}$ (= 0.26)	
		A1	cao	

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13	18.9	P1	for using length scale factor to find *AB*, eg (*AB* =) $10.8 \div \left(\frac{3}{2}\right)$ or (*AB* =) $10.8 \times \left(\frac{2}{3}\right)$ (= 7.2) for using length scale factor to find *BC*, eg (*BC* =) $10.8 \div \frac{6.3}{6.3-4.2}$ or (*BC* =) $10.8 \times \frac{6.3-4.2}{6.3}$ (= 3.6) **or** finds area scale factor, eg $\left(\frac{3}{2}\right)^2$ or $\left(\frac{2}{3}\right)^2$	Can use a combination of skills but must have a complete process to find *AB* or *BC* to score this mark
		P1	for a complete process to find the area of trapezium, eg $\frac{6.3+4.2}{2} \times (10.8 - "7.2")$ or $\frac{(6.3-4.2) \times "3.6"}{2} + "3.6" \times 4.2$ or $\frac{10.8 \times 6.3}{2} - \frac{7.2 \times 4.2}{2}$ or $\frac{10.8 \times 6.3}{2} - \frac{10.8 \times 6.3}{2} \div \left("\frac{3}{2}"\right)^2$ or $\frac{10.8 \times 6.3}{2} - \frac{10.8 \times 6.3}{2} \times \left("\frac{2}{3}"\right)^2$	
		A1	accept trailing zeros eg 18.90	

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
14	Shown	M1	for start to find multiples of x with the same recurring pattern eg for ($10x$ =) 4.626262… **or** ($100x$ =) 46.262626… **or** ($1000x$ =) 462.626262…	Any recurring notation acceptable throughout. Proofs with terminating decimals (at least 5 figures) score M1M1C0
		M1	(dep on M1) for a correct subtraction that would lead to a terminating decimal, eg ($1000x - 10x$) = 462.6262… - 4.6262… (= 458) **or** ($100x - x$) = 46.2626 … – 0.4626… (= 45.8)	
		C1	for correct working leading to the correct answer	
15	$p = \frac{5t+6}{4+2t}$	M1	for clearing the fraction eg $t(5-2p) = 2(2p-3)$ **or** $5t - 2pt = 4p - 6$	Condone error in expansion of RHS for this mark
		M1	(dep M1) for isolating p terms in a **correct** equation eg $4p + 2pt = 5t + 6$	
		M1	(dep on two terms in p of the form $ap + bpt$) for factorising eg $p(4+2t) = 5t + 6$	a and b are non zero integers
		A1	for $p = \frac{5t+6}{4+2t}$ or $p = \frac{5t+6}{2(2+t)}$ oe eg $p = \frac{-6-5t}{-4-2t}$	

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
16	(7, 3.5)	P1	process to find the gradient of *OB*, eg $\frac{-4-0}{2-0}(=-2)$	
		P1	process to find the equation of *DE*, eg substitutes (12, −6.5) into *y* = "−2"*x* + *c* or *y* = [−2]*x* + *c* or *y* − − 6.5 = "−2"(*x* − 12) or *y* − − 6.5 = [−2](*x* − 12)	Equation of *DE* is *y* = −2*x* + 17.5 Where [-2] can be $\frac{-1}{2}$ or 2 or $\frac{1}{2}$ and must be labelled as the gradient of *OB*
		P1	process to find the equation of *OD*, eg substitutes (0, 0) into $y=\frac{-1}{"-2"}x+c$ or $y=\frac{-1}{[-2]}x+c$ or $y-0=\frac{-1}{"-2"}(x-0)$ or $y-0=\frac{-1}{[-2]}(x-0)$	Equation of *OD* is $y=\frac{1}{2}x$ Where [-2] can be $\frac{-1}{2}$ or 2 or $\frac{1}{2}$ and must be labelled as the gradient of *OB*
		P1	(dep P3) forms an equation that can be solved to find *x* coordinate of *D*, eg "−2*x* + 17.5" = "$\frac{1}{2}x$"	
		A1	cao	A correct answer with no supportive working gets 0 marks

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
17	56.0	P1	for a start to the process by correctly substituting into the cosine rule to find an angle eg, $18.2^2 = 14.6^2 + 7.9^2 - 2 \times 14.6 \times 7.9 \times \cos A$	
		P1	for rearranging to find cos *A*, eg $\cos A = \frac{14.6^2+7.9^2-18.2^2}{2 \times 14.6 \times 7.9}$ (=−0.2413…) or $A = 103.965\ldots$	cos *B* = 0.9069… *B* = 24.912… cos *C* = 0.6276… *C* = 51.1222…
		P1	for process to find the area of triangle *ABC* eg Area = $\frac{1}{2} \times 7.9 \times 14.6 \times \sin$ ("103.965…") or Area = $\frac{1}{2} \times 7.9 \times 14.6 \times \sin$ [A] Area = $\frac{1}{2} \times 14.6 \times 18.2 \times \sin$ ("24.912…") or Area = $\frac{1}{2} \times 14.6 \times 18.2 \times \sin$ [B] Area = $\frac{1}{2} \times 7.9 \times 18.2 \times \sin$ ("51.1222…") or Area = $\frac{1}{2} \times 7.9 \times 18.2 \times \sin$ [C]	[*A*], [*B*], [*C*] must be a numerical value and clearly identified by labelling or on the diagram with no contradiction
		A1	for answer in the range 55.96 to 56.0	If an answer is given in the range in working and then rounded incorrectly award full marks

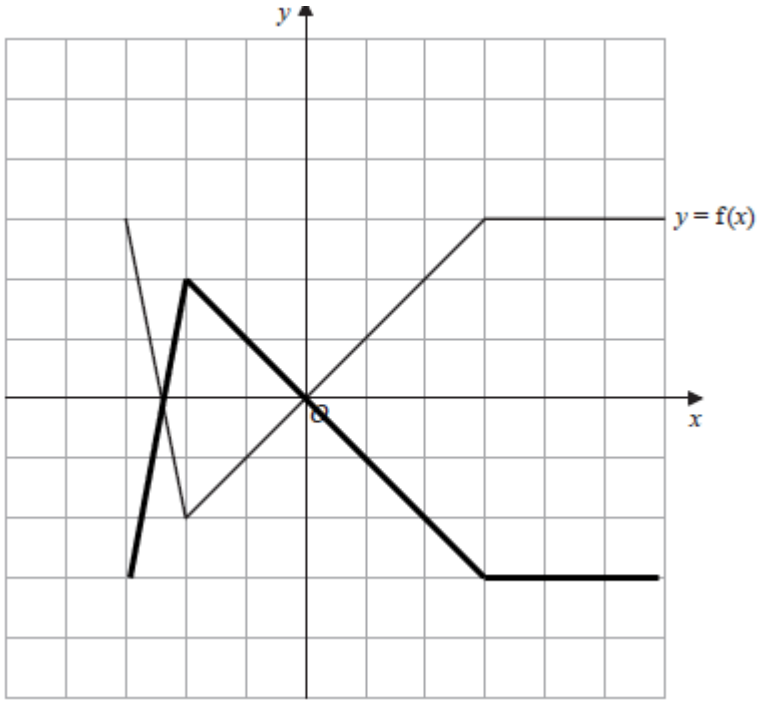
Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
18 (a)	200	P1	for $\frac{55}{11}$ (= 5) or $\frac{11}{55}$ (= 0.2) or $\frac{40}{11}$ (= 3.63..) or $\frac{11}{40}$ (= 0.275) or for starting to use ratio eg tagged : untagged = 11 : 44 oe	Allow decimal values truncated or rounded to at least 2dp
		P1	for $\frac{11}{55} = \frac{40}{n}$ or $\frac{11}{40} = \frac{55}{n}$ or $\frac{55\times40}{11}$ oe or for process to find the number of untagged frogs eg $\frac{55-11}{11}\times 40\ (=160)$	May be seen in ratio eg 40 : 160
		A1	cao	A correct answer with no supportive working gets 0 marks.
(b)	Assumption	C1	for a suitable assumption, **Acceptable examples** no frogs have left/arrived at the lake no tags have fallen off / no lost tags sample of frogs taken was a random sample / this is a representative sample tagged frogs are distributed around the lake no baby frogs / no frogs have died There are (still) 4 untagged for every tagged frog. The tagged frogs had time to blend into the population. It is a closed environment There aren't any more frogs in the lake No other frogs in the lake **Not acceptable examples** She has caught all the frogs There are lots of frogs. This is the same lake	

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
19	6	P1	for starting process, by defining height, radius **and** using Pythagoras to form an equation for the slant height l eg height = h, radius = $\frac{3}{4}h$ **and** $l^2 = h^2 + \left(\frac{3h}{4}\right)^2 \left(= \frac{25}{16}h^2\right)$ or $(l =)\sqrt{h^2 + \left(\frac{3h}{4}\right)^2} \left(= \frac{5}{4}h\right)$ oe eg $r = 3x$ **and** $h = 4x$ **and** $l^2 = (3x)^2 + (4x)^2$	Can use any other letter than h provided it is defined eg height = x
		P1	(dep P1) for process to form a correct expression for the curved surface area in terms of a single variable, eg $\pi \times \frac{3}{4}h \times "\frac{5}{4}h" \left(= \frac{15}{16}\pi h^2\right)$ or $\pi \times 3x \times "5x"$ where $h = 4x$	May include area of circle eg $\pi \times \left(\frac{3}{4}h\right)^2 + \pi \times \frac{3}{4}h \times "\frac{5}{4}h" \left(= \frac{24}{16}\pi h^2\right)$
		P1	for forming and simplifying a correct equation to find height, eg $\frac{24\pi}{16}h^2 = 54\pi$	
		A1	cao	

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
20	$x = 26.3\ldots$, $y = -45.6\ldots$ and $x = 1.71\ldots$, $y = 3.57\ldots$	M1	for correct substitution for y^2 or x^2, eg $(7 - 2x)^2 = 3x^2 + 4$ **OR** for correct rearrangement and expansion of $(7-2x)^2$ to obtain 4 terms with all correct without considering signs or for 3 terms out of 4 correct with correct signs **and** substitution eg $(7-2x)^2 = 49-14x-14x+4x^2$ **and** $49-14x-14x+4x^2 = 3x^2+4$	NB $49-28x$ or $-28x+4x^2$ can be considered 3 terms out of 4 correct with correct signs
		M1	for method to write a correct simplified equation eg $x^2 - 28x + 45$ (=0)	The quadratic does not have to equal 0, ie accept $x^2 - 28x = -45$
		M1	for a method to solve a correct quadratic eg $\frac{28 \pm \sqrt{(-28)^2 - 4\times1\times45}}{2\times1}$ or $\frac{28 \pm \sqrt{604}}{2}$ or $14 \pm \sqrt{151}$ **or** $(x-14)^2 - 14^2 + 45 = 0$ oe	Can be implied by both x values correct or both y values correct
		A1	$x = 26.2$ to 26.3, $y = -45.6$ to -45.5 **and** $x = 1.7$ to 1.712, $y = 3.5$ to 3.6	Answers must be correctly paired (Maybe in the body of the working) If answers are given in the range in working and then rounded incorrectly award full marks

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
21 (a)	Sketch	B1	for an appropriate sketch, ie reflection in x axis	Allow some tolerance on the points and in drawing the function if the intention is clear
(b)	(90, 3)	M1	for coordinates of $p = (270, -1)$	May see 270 and –1 marked in the correct positions on the axes
		M1	for describing part of the translation, eg "270" – 180, or "−1" + 4 or $[x_p]$ – 180, or $[y_p]$ + 4 **or** for an answer of (90, b) or an answer of (a, 3)	$[x_p]$, $[y_p]$ must be a numerical value and clearly identified as point P by labelling or on the diagram with no contradiction
		A1	cao	
22	1760	M1	for starting to find the area under the curve, eg 0.5 × 10 × **54** (= 270) oe or 0.5 × 10 × (**54** + **76**) (= 650) oe or 0.5 × 10 × (**76** + **92**) (= 840)	Must have one correct expression for the award of this mark May be seen as a rectangle added to a triangle
			or for a method to find an estimate for the area of at least 1 strip with heights at intersection of midpoint and curve eg 10 × [**39**] oe or 10 × [**67**] oe or 10 × [**86**] oe	Where 38 ≤ [39] ≤ 40 Where 66 ≤ [67] ≤ 68 Where 85 ≤ [86] ≤ 87
		M1	for a complete method to find the area under the curve, eg 0.5 × 10 × 54 + 0.5 × 10 × (54 + 76) + 0.5 × 10 × (76 + 92) oe eg 0.5 × 10 (92 + 2(54 + 76) **or** 10 × [39] + 10 × [67] + 10 × [86] oe	Allow 1 error in y values used
		A1	for 1760 or 1890 to 1950 SCB2 for an answer in the range 1815 – 1855	Allow 1890 to 1950 only if it comes from midpoint method

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
23	Sketch graph with minimum point at $(3p, -9p^2 - 7)$ in 4th quadrant and y intercept at $(0, -7)$	B1	for a curve drawn with intercept at the point $(0, -7)$	
		M1	for the start of a method to find the turning point, eg $(x - 3p)^2$ … **or** an x coordinate of $3p$ at the vertex	where … can be any constant term(s) but not term(s) in x
		M1	(dep) for a complete correct method to find the turning point, eg $(x - 3p)^2 - 9p^2 - 7$ **or** substitutes $x = 3p$ into the equation to find y	Allow $(3p)^2$ for $9p^2$ throughout
		B1	for turning point at $(3p, -9p^2 - 7)$	
		C1	for a sketch of a parabola drawn with intercept at $(0, -7)$ and minimum turning point clearly shown as being at $(3p, -9p^2 - 7)$ in the 4th quadrant.	A correct answer with no supportive working gets 0 marks


y
y = f(x)
O
x

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

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_3H			
Question		**Modification**	**Mark scheme notes**
1		Wording added: 'Look at the diagram for Question 1 in the Diagram Booklet. It shows a grid.' Wording added: 'below' Value '100' changed to '90'. Table enlarged and left aligned. Frequency values in the table changed from 12, 28, 30, 22, 8 to 10, 25, 30, 20, 5 Wording changed from 'below' to 'in the Diagram Booklet'. For Braille: sentence added 'Bumpons and drawing film are provided if you wish to use them.' Diagram enlarged. Open headed arrows.	Standard mark scheme but points plotted at heights 10, 25, 30, 20, 5
3		Wording added: 'Look at the diagram for Question 3 in the Diagram Booklet. It shows angle ABC' Diagram enlarged. Diagram rotated so that BC is horizontal. For Braille: sentence added 'Drawing film is provided if you wish to use it.'	Standard mark scheme
4		Wording added: 'Look at the diagram for Question 4 in the Diagram Booklet. It shows an incomplete probability tree diagram.' For MLP: wording added 'in the Diagram Booklet. There are five spaces to fill.' For Braille: wording changed 'Complete the probability tree diagram by writing the missing values labelled (i) to (v).' Diagram enlarged.	Standard mark scheme
5		p changed to pence	Standard mark scheme
6		Wording changed: 'Look at the diagram for Question 6 in the Diagram Booklet. It is a stem and leaf diagram showing …' Diagram enlarged. Horizontal line added at the bottom of the diagram. Key moved above and left of the diagram.	Standard mark scheme

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Question		**Modification**	**Mark scheme notes**
8		Wording changed: 'Look at the diagram for Question 8 in the Diagram Booklet. It shows a right-angled triangle ABC BC = 7.6 cm Angle ACB = 62° Angle ABC is a right angle.' Diagram enlarged. Right angle made more obvious. Angle moved outside of the angle arc and angle arc made smaller.	Standard mark scheme
11		Wording changed: 'Look at the diagram for Question 11 in the Diagram Booklet. It shows OAB, a sector of a circle with centre O and radius 4.7 metres.' Diagram enlarged. m changed to metres.	Standard mark scheme
13		Wording changed: 'Look at the diagram for Question 13 in the Diagram Booklet. It shows straight lines ABC and AED' Wording added: 'Angles ABE and ACD are right angles.' Diagram enlarged. Right angles made more obvious. Open headed arrows. Dimensions added to the diagram.	Standard mark scheme
16		Wording added: 'Look at the diagram for Question 16 in the Diagram Booklet. It shows OBCD and DCE on a set of axes.' Diagram enlarged. Open headed arrows. Coordinates added to the diagram.	Standard mark scheme
17		Wording changed: 'Look at the diagram for Question 17 in the Diagram Booklet. It shows triangle ABC AB = 14.6 cm BC = 18.2 cm CA = 7.9 cm' Diagram enlarged.	Standard mark scheme

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Question		**Modification**	**Mark scheme notes**
19		Wording changed: Look at Diagram 1, Diagram 2, Diagram 3 and the formula for Question 19 in the Diagram Booklet. You may be provided with a model. The diagrams and model are NOT accurate. Diagram 1 and the model show a cone. Diagram 2 shows the base of the cone. Diagram 3 shows a side view of the cone. Model provided. Diagram enlarged. 2 additional 2D views added. Formula moved to the Diagram Booklet. Open headed arrows.	Standard mark scheme
21	(a)	Wording changed: 'Look at the diagram for Question 21(a) in the Diagram Booklet. It shows the graph of $y = f(x)$' Diagram enlarged. Grid cropped. Open headed arrows. For Braille: sentence added 'Bumpons and drawing film are provided if you wish to use them.'	Standard mark scheme
	(b)	Wording changed: 'Look at the diagram for Question 21(b) in the Diagram Booklet. It shows a sketch of the graph of $y = \sin x°$' Diagram enlarged. Cross changed to a dot. Open headed arrows.	Standard mark scheme
22		Wording changed: 'Look at the diagram for Question 22 in the Diagram Booklet. It shows a velocity–time graph for an aeroplane.' m changed to metres Diagram enlarged. Line changed to go through the points (0, 0), (10, 50), (20, 80) and (30, 90). Open headed arrows. s changed to seconds	M1 for starting to find the area under the curve, eg $0.5 \times 10 \times 50$ (= 250) M1 for a complete method to find the area under the curve, eg $0.5 \times 10 \times 50 + 0.5 \times 10 \times (50 + 80) + 0.5 \times 10 \times (80 + 90)$ A1 for 1750
23		Wording added: 'Look at the diagram for Question 23 in the Diagram Booklet. It shows blank axes. On the diagram,' Diagram enlarged. Open headed arrows. For Braille: sentence added 'Bumpons and drawing film are provided if you wish to use them.'	Standard mark scheme

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