Pearson

Mark Scheme (Results)

November 2025

PEARSON EDEXCEL GCSE in Mathematics
Higher (Calculator)
1MA1/2H

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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 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 (a)	56 300 000	B1	cao	
(b)	3.54×10^{-5}	B1	cao	
2	$2\times2\times2\times2\times3\times5\times5\times7$	M1	for beginning to work with prime factors, eg $(A=)2\times3\times5$ **or** $(B=)2^3\times5\times7$ **or** $(A=)2,3,5$ **or** $(B=)2,2,2,5,7$ **or** for a complete method to find prime factors for $2\times15\times8\times5\times7$ oe could be shown on a complete factor tree with no more than one arithmetic error or by division by prime factors with no more than one error **or** for $2,2,2,2,3,5,5,7$	Condone the inclusion of 1 for this mark only Factor tree for $2\times15\times8\times5\times7$ may be shown as a factor tree for 30×280 or 8400
		A1	for $2\times2\times2\times2\times3\times5\times5\times7$ oe provided in prime factor form SCB1 for an answer of $2\times5\times31$	Accept $2^4\times3\times5^2\times7$ Prime factors may be written in any order

Question	Answer	Mark	Mark scheme	Additional guidance
3	0.53	P1	for process to begin to use ratio to find probability of black pen or green pen, eg $0.27 \div 3\ (=0.09)$	May work in decimals or equivalent fractions or percentages throughout
		P1	for process to use ratio to find probability of black pen or green pen, eg $"0.09" \times 5\ (=0.45)$ **or** $"0.09" \times 2\ (=0.18)$ **OR** for process to find combined probability of black, green and red pens, eg $"0.09" \times (5+2+3)\ (=0.9)$	
		P1	for process to find combined probability of a pink or orange pen, eg $1-0.27-"0.45"-"0.18"\ (=0.1)$ **or** $1-"0.9"\ (=0.1)$ **OR** ([pink or orange] =) 1 – 0.27 – [black] – [green] oe	[black] and [green] must be clearly identified as the probabilities for black and green and cannot be 0.27 where 0 < [black] < 1 and 0 < [green] < 1 **and** 0 < [pink or orange] < 1 May be implied by P(pink) + P(orange) = 0.1, may be seen in table
		P1	for process to find the probability of a pink pen, eg $"0.1" \div (4+1) \times 4\ (=0.08)$ **OR** (dep on prev P1) [pink or orange] ÷ 5 × 4	[pink or orange] must have come from a previous correct process where 0 < [pink or orange] < 1
		A1	for 0.53 oe	

Question	Answer	Mark	Mark scheme	Additional guidance
4	Shown with supportive working	M1	for start to a method to find common multiples of 30 **and** 26, eg writes down at least 3 multiples of 30 **and** 26 (can include 30 and 26 may not be consecutive) **or** correctly adds 30 **and** 26 at least 3 times starting with 7:45	30, 60, 90, 120, 150, 180, 210, 240, 270, 300, 330, 360, 390 26, 52, 78, 104, 130, 156, 182, 208, 234, 260, 286, 312, 338, 364, 390 7:45, 8:15, 8:45, 9:15. 9:45, 10:15, 10:45, 11:15, 11:45, 12:15, 12:45, 13:15, 13:45, 14:15 7:45, 8:11, 8:37, 9:03, 9:29, 9:55, 10:21, 10:47, 11:13, 11:39, 12:05, 12:31, 12:57, 13:23, 13:49, 14:15
			or for the prime factors 2, 13 and 2, 3, 5 (could be shown in a factor tree with no more than one arithmetic error in each list, or Venn diagram or table)	Condone the inclusion of 1 for this mark
			or clearly identifies the factors, 13, 2 and 15 only (may be seen in a grid)	If a list of factors is given, 13, 2 and 15 only must be unambiguously identified
			or for any common multiple, eg 390, 780, …	
		M1	for method to work with time appropriately, eg 14:00 – 7:45 (= 6.25 hrs) **or** 375 mins **or** 6 hrs 15 mins	
			or shows a build up method using both 30 **and** 26 minutes beyond 12 noon	Allow no more than 1 error or omission for each list
			or converts their common multiple to hrs or hours and minutes, eg 390 (mins) = 6.5 (hrs) **or** 390 (mins) = 6 (hrs) 30 (mins)	Must use a common multiple.
		C1	(dep on M2) shown with accurate figures, eg unambiguously identifies 14:15 oe **or** 6.5 (hrs) **and** 6.25 (hrs) **or** 6 (hrs) 30 (mins) **and** 6 (hr) 15 (mins) **or** 390 (mins) **and** 375 (mins)	Units not needed, but if given must be correct An incorrect conversion will score C0, eg 6.5 incorrectly converted to 6 hrs 50 mins

Question	Answer	Mark	Mark scheme	Additional guidance
5	46	P1	for process to set up a correct equation for the full or partial perimeter of the large square, eg $4\times(2x+x-4)=74$ **or** $12x-16=74$ **or** $2x+x-4=74\div4$ **or** $3x-4=18.5$ **or** $2\times(2x+x-4)=74\div2$ **or** $6x-8=37$	
		P1	for process to isolate terms in x in a correct equation, eg $12x=90$ **or** $3x=22.5$ **or** $6x=45$	For this mark to be awarded, step must be carried out, not just intention shown. For example if you see $12x-16=74$ $+16\quad+16$ Only award P1 when you see $12x=k$ where $k>74$
		P1	for a complete process to solve for x in a correct equation, eg $x=\frac{90}{12}\ (=7.5)$	May be implied by 15 or 3.5 correctly placed on diagram providing not contradicted
		P1	for full process to find perimeter of shaded shape, eg $4\times((2\times"7.5")-("7.5"-4))$oe **or** $74-8\times("7.5"-4)$ or $4\times((2\times[x])-([x]-4))$oe **or** $74-8\times([x]-4)$ or $4\times([\text{length}]-[\text{width}])$ **OR** for a correct expression for the perimeter of the shaded square, eg $4\times(2x-(x-4))$ **or** $4\times(x+4)$ **or** $74-8\times(x-4)$	[x] must be clearly identified and $x>4$ [length] and [width] must clearly identified as the length and width of the rectangle **and** sum to $74\div4$
		A1	cao	

Question	Answer	Mark	Mark scheme	Additional guidance
6	185 000	M1	for a complete method, eg $160\,950 \div (100-13) \times 100$ **or** $160\,950 \div 0.87$	If further incorrect calculations are seen award M0
		A1	cao	
7	0.96	P1	for process to find volume of flour or total volume of pastry, eg $450 \div 0.6\ (=750)$ **or** $630 \div 0.672\ (=937.5)$	
		P1	for process to find volume of butter, eg "937.5"−"750" $(=187.5)$	
		P1	for process to find density of butter, eg $180 \div$ "187.5" **or** $180 \div$ [volume] **or** $180 \div ([\text{mix}]-[\text{flour}])$	May be implied by $\frac{24}{25}$ [volume] must come from 2 correct calculations for volume incorrectly combined [mix] and [flour] must be what they believe to be the volume of mix and flour and cannot be 450, 180, 630, 0.6 or 0.672
		A1	cao	

Question	Answer	Mark	Mark scheme	Additional guidance
8	211	M1	for method to find one area, eg $\pi \times \left(\frac{8}{2}\right)^2 \ (=50.2...)$ **or** $\pi \times \left(\frac{8}{2}\right) \times 12.8 \ (=160.8...)$	allow use of 3.14 or better for π Implied by 16π **or** 51.2π **or** $\frac{256}{5}\pi$ Condone area of base embedded in an incorrect calculation, eg $\pi \times \left(\frac{8}{2}\right)^2 \times 12.8$ for this mark only
		M1	for full method to find total surface area, eg $\pi \times \left(\frac{8}{2}\right)^2 + \pi \times \left(\frac{8}{2}\right) \times 12.8$	Implied by 67.2π **or** $\frac{336}{5}\pi$
		A1	for answer in range 211 to 211.2 SCB2 for an answer in the range 522.7 to 523 if no marks awarded	Implied by 166.4π **or** $\frac{832}{5}\pi$
9	4075 and 4125	B1	for 4075 in the correct position	
		B1	for 4125 in the correct position	Accept $4124.\dot{9}$ or 4124.99(...)
10	**A** **C**	B2	both letters correct	Equation may be written in place of letters
		(B1	one letter correct)	
			SCB1 if general form for equations given for both, eg $y = kx$ **and** $y = \frac{k}{x}$	

Question	Answer	Mark	Mark scheme	Additional guidance
11 (a)	$x^3 + 7x^2 - 6x - 72$	M1	for a method to find the product of any two linear expressions, 3 correct terms out of 4 terms or 4 terms correct ignoring signs, eg $x^2 + 4x - 3x - 12 \left(= x^2 + x - 12\right)$ **or** $x^2 + 4x + 6x + 24 \left(= x^2 + 10x + 24\right)$ **or** $x^2 - 3x + 6x - 18 \left(= x^2 + 3x - 18\right)$	Note that, for example, $3x - 18$ is regarded as three terms in the expansion of $(x - 3)(x + 6)$
		M1	(dep) for a complete method to obtain all terms, at least half of which are correct (ft their first product) eg $x^3 + 6x^2 + 4x^2 - 3x^2 + 24x - 18x - 12x - 72$ **or** $x^3 + 6x^2 + x^2 + 6x - 12x - 72$ **or** $x^3 - 3x^2 + 10x^2 - 30x + 24x - 72$ **or** $x^3 + 4x^2 + 3x^2 + 12x - 18x - 72$	First product must be a quadratic with at least 3 terms but need not be simplified or may be simplified incorrectly
		A1	cao	
(b)	Description	C1	identifies a mistake in the working **Acceptable examples** He should have added 6 to 5 (and 12) He only added 6 to 12 He should do the same thing to both sides He should add 6 to both sides then divide by 4 on both sides It should be $11 < 4x < 18$ **Not acceptable examples** He has solved it wrong The answer should be $2.75 < x < 4.5$ He should divide by 4 first He has done it correctly He has to add the −6 to the 5	

Question	Answer	Mark	Mark scheme	Additional guidance
12 (a)	25, 65, 195, 250, 280, 300	B1	cao	
(b)	Graph drawn	M1	for 5 or 6 of their points plotted correctly from a CF table	Ignore any histograms
		A1	for a fully correct graph SCB1 for 5 or 6 of their points plotted not at end but consistently within each interval and joined provided no gradient is negative	Ignore to the left of the first point and right of the last point. Accept a smooth curve or line segments.
(c)	21 to 27	M1	for reading taken from the CF axis at point from a weight of 18 **or** ft their graph	CF graph must have no negative gradient to award ft
		M1	for a complete method eg $\left(\left(300-225\right)\div 300\right)\times 100$ or $\left(\left(300-[\text{CF}]\right)\div 300\right)\times 100$ **or** ft their graph	[CF] must be what they believe to be the CF for a weight of 18
		A1	for answer in the range 21% to 27% **or** ft their graph	A correct answer in range with no supportive working scores 0 marks

Question	Answer	Mark	Mark scheme	Additional guidance
13	840	M1	for starting to list possible options, eg states 4 or more different combinations and no incorrect combinations **or** clearly indicates the 4 possible ways to start a number with no incorrect, eg 4 3 _ _ _, 4 1 _ _ _, 3 _ _ _ _, 1 _ _ _ _ **or** $1 \times 6 \times 5 \times 4 \times 3$ (= 360) **or** $2 \times 6 \times 5 \times 4 \times 3$ (= 720) **or** $1 \times 2 \times 5 \times 4 \times 3$ (= 120)	
		M1	for full method to find number of possible values eg $2 \times 6 \times 5 \times 4 \times 3 + 1 \times 2 \times 5 \times 4 \times 3$ oe	
		A1	cao	
14	$5n^2 + 3n - 12$	M1	for correct start to a method to find the nth term, eg equal 2nd differences imply a term in n^2 **or** gives the sequence 5, 20, 45, 80, 125, … or gives a quadratic expression which includes the term $5n^2$ **OR** states $2a = 10$ **or** $3a + b = 18$	Need to see constant second difference found and n^2 A quadratic expression of the form $5n^2 + bn + c$ can be awarded the first mark $a = 5$ **or** $b = 3$ implies M1
		M1	for working with $5n^2$, eg $5n^2$ and sequence −9, −6, −3, , … **OR** states $2a = 10$ **and** $3a + b = 18$	$5n^2 + 3n$ implies M2 $a = 5$ **and** $b = 3$ implies M2
		A1	for $5n^2 + 3n - 12$	

Question	Answer	Mark	Mark scheme	Additional guidance
15	$y \geqslant -3$ $x \geqslant 0$ $y \leqslant 0.5x + 3$ and $y \leqslant 8 - 2x$	M1 M1 M1 A1	for $y \geqslant -3$ oe **or** $x \geqslant 0$ for $y \leqslant 0.5x + 3$ oe for $y \leqslant 8 - 2x$ oe $y \geqslant -3$ oe, $x \geqslant 0$, $y \leqslant 0.5x + 3$ oe and $y \leqslant 8 - 2x$ oe	Accept = or any inequality for all method marks Accept strict inequalities

Question	Answer	Mark	Mark scheme	Additional guidance
16 (a)	125 to 150	M1	for drawing a tangent at $t = 1.5$	The tangent must be seen to award any marks
		M1	for a complete method to find the gradient from tangent eg $\frac{450}{3.4}$ or $\frac{\text{change in } y}{\text{change in } x}$	This mark can be awarded if the tangent is drawn at $t \neq 1.5$ Working may be seen on the diagram
		A1	for answer in the range 125 to 150	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
(b)	910	M1	for a method to find an appropriate area, eg $0.5\times 70\ (=35)$ **or** $0.5\times 1\times(70+250)\ (=160)$ **or** $0.5\times 0.1\times(250+370)\ (=310)$ **or** $0.5\times 1\times(370+440)\ (=405)$ **or** for a method to find an estimate for the area of at least one rectangle with height at the intersection of midpoint and curve, eg $35\times 1\ (=35)$ **or** $120\times 1\ (=120)$ **or** $390\times 1\ (=390)$ **or** $340\times 1\ (=340)$	Must have one correct expression or evaluation for the award of this mark May be seen as a rectangle added to a triangle
		M1	for a complete method, eg $0.5\times 70+0.5\times 1\times(70+250)+0.5\times 1\times(250+370)+0.5\times 1\times(370+440)$ **or** $\frac{1}{2}\times 1\times(6+440+2(70+250+370))$ **or** $35\times 1+120\times 1+390\times 1+340\times 1$	Allow 1 error in velocity values used
		A1	for 910 **or** 885	Allow 885 only if it comes from rectangle/midpoint method

Question	Answer	Mark	Mark scheme	Additional guidance
17 (a)	histogram drawn	B3	for fully correct histogram, eg relative heights 1.1, 2.8, 2.4, 1.7, 1.2	
		(B2	for 4 correct bars **or** for frequency ÷ class interval for all five frequencies **and** 2 correct bars of different widths)	
		(B1	for 2 correct bars **or** for frequency ÷ class interval for at least 3 frequencies)	
(b)	38	M1	for a method to find number of people in one bar of the interval, eg $\frac{1}{4}\times 56\ (=14)$ **or** $\frac{2}{5}\times 60\ (=24)$ **or** $5\times 2.8\ (=14)$ **or** $10\times 2.4\ (=24)$ **or** ft their histogram	
		M1	for complete method, eg $\frac{1}{4}\times 56+\frac{2}{5}\times 60$ **or** $5\times 2.8+10\times 2.4$ **or** ft their histogram	
		A1	cao	

Question	Answer	Mark	Mark scheme	Additional guidance
18	25.64	P1	for identifying that angle $ABC = 90°$ **or** angle $OCB = 38°$ **or** $ABO = 52°$	
		P1	for process to find size of angle AOB, eg $180 - (180 - 38 - 38)\ (= 76)$ **or** $180 - 52 - 52\ (= 76)$	
		P1	for process to find area of sector, eg $\frac{"76"}{360} \times \pi \times 12^2\ (= 95.50...)$ **or** $\frac{[AOB]}{360} \times \pi \times 12^2$	Implied by $\frac{152}{5}\pi$ [AOB] must be clearly identified and not 38 or 52 Condone use of $r = 6$
		P1	for process to find area of triangle AOB, eg $\frac{1}{2} \times 12 \times 12 \times \sin"76"\ (= 69.86...)$ **or** $\frac{1}{2} \times 12 \times 12 \times \sin[AOB]$	[AOB] must be clearly identified and not 38 or 52 Condone use of $r = 6$
		A1	for answer in range 25.5 to 25.7	

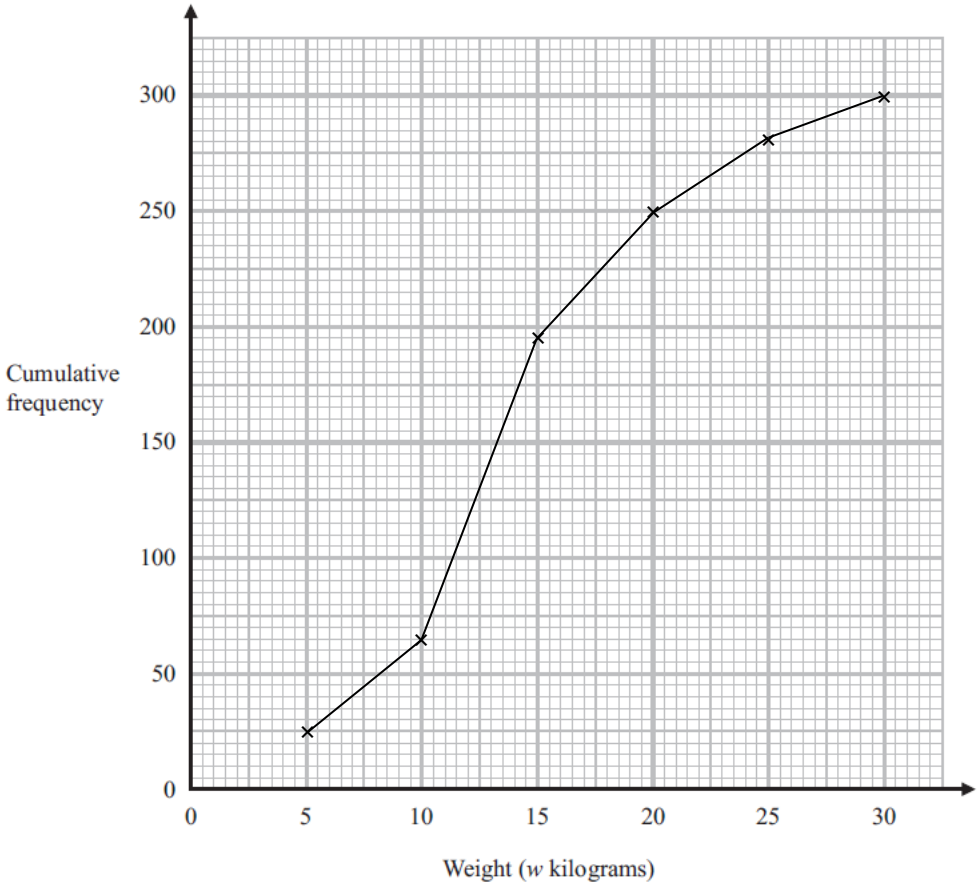
Question	Answer	Mark	Mark scheme	Additional guidance
19	$\frac{5}{2}\mathbf{a}-\frac{9}{2}\mathbf{b}$	P1	for process to find a relevant missing vector, eg $\overrightarrow{EC}=\mathbf{b}-\mathbf{a}$ **or** $\overrightarrow{CE}=\mathbf{a}-\mathbf{b}$ **or** $\overrightarrow{QC}=-2\mathbf{b}$ **or** $\overrightarrow{CQ}=2\mathbf{b}$ **or** $\overrightarrow{QA}=-3\mathbf{b}$ **or** $\overrightarrow{AQ}=3\mathbf{b}$	All vectors must be clearly assigned
		P1	for process to find $\overrightarrow{CB}$ **or** $\overrightarrow{AB}$ **or** $\overrightarrow{EB}$ eg $\overrightarrow{CB}=\frac{5}{2}"(\mathbf{a}-\mathbf{b})"$ **or** $\overrightarrow{AB}=\mathbf{b}+\frac{5}{2}"(\mathbf{a}-\mathbf{b})"\left(=\frac{5}{2}\mathbf{a}+\frac{3}{2}\mathbf{b}\right)$ **or** $\overrightarrow{AB}=\mathbf{a}+\frac{3}{2}"(\mathbf{a}-\mathbf{b})"\left(=\frac{5}{2}\mathbf{a}+\frac{3}{2}\mathbf{b}\right)$ **or** $\overrightarrow{EB}=\frac{3}{2}"(\mathbf{a}-\mathbf{b})$	
		P1	for complete process to find $\overrightarrow{QB}$ in terms of **a** and **b**, eg $\overrightarrow{QB}="-2\mathbf{b}"+"\frac{5}{2}(\mathbf{a}-\mathbf{b})"$ **or** $\overrightarrow{QB}="-3\mathbf{b}"+"\left(\mathbf{b}+\frac{5}{2}(\mathbf{a}-\mathbf{b})\right)"$ **or** $\overrightarrow{QB}="-3\mathbf{b}"+"\left(\mathbf{a}+\frac{3}{2}(\mathbf{a}-\mathbf{b})\right)"$ **or** $\overrightarrow{QB}=-3\mathbf{b}+\mathbf{a}+"\left(\frac{3}{2}(\mathbf{a}-\mathbf{b})\right)"$	
		A1	for $\frac{5}{2}\mathbf{a}-\frac{9}{2}\mathbf{b}$ oe eg, $\frac{1}{2}(5\mathbf{a}-9\mathbf{b})$ **or** $2.5\mathbf{a}-4.5\mathbf{b}$	

Question	Answer	Mark	Mark scheme	Additional guidance
20	1600	P1	for process to find BD, eg $BD=\sqrt{14^2+14^2}$ **or** $\sqrt{392}$ **or** $14\sqrt{2}$ or $19.7(9...)$ **or** $\sqrt{7^2+7^2}$ **or** $\sqrt{98}$ **or** $7\sqrt{2}$ or $9.8(9...)$	Check diagram for working Other methods are possible for first 2 P marks but only award the mark at the point of an equation with the correct length as the only unknown
		P1	for correct process to use trigonometry to find perpendicular height, eg $\tan 68=\frac{h}{"19.7(9...)"\div 2}$ or $h = 24.502...$ **or** $\tan 68=\frac{h}{[BD]\div 2}$	[BD] must be clearly identified but cannot be 14
		P1	for process to find the volume of a pyramid, eg $(V=)\frac{1}{3}\times 14^2\times "24.5..."$ oe	
		A1	for answer in the range 1594 to 1601	

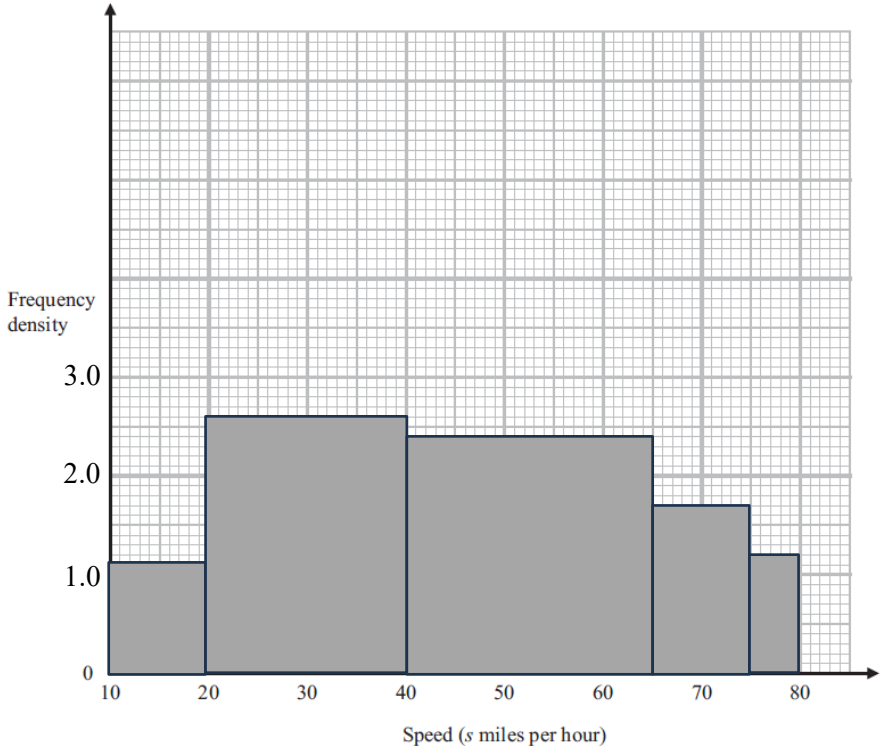
Question	Answer	Mark	Mark scheme	Additional guidance
21	(4.49, −3.98) (−0.49, 5.98)	P1	for substitution of a rearrangement into their equation of the circle, eg $x^2+(5-2x)^2=36$ **or** $\left(\frac{5-y}{2}\right)^2+y^2=36$ **or** correctly expanding of $(5-2x)^2=4x^2-20x+25$ **or** expansion of $\left(\frac{5-y}{2}\right)^2=\frac{y^2-10y+25}{4}$	3 correct terms out of 4 terms or 4 terms ignoring signs, Note that, for example, $-20x+25$ is regarded as three terms in the expansion of $(5-2x)^2$
		P1	For expanding **and** forming a correct quadratic, eg $x^2+4x^2-20x+25=36$ **or** $x^2+4x^2-20x-11\,(=0)$ **or** $5x^2-20x+25=36$ **or** $5x^2-20x-11\,(=0)$ **or** $\frac{y^2-10y+25}{4}+y^2=36$ **or** $y^2-10y+25+4y^2=144$ **or** $5y^2-10y-119\,(=0)$	Brackets must be correctly expanded for this mark
		P1	(dep on P1) for process to solve using formula, ft a 3 term quadratic, eg $\frac{-(-20)\pm\sqrt{(-20)^2-4\times5\times(-11)}}{2\times5}$ **or** $\frac{20\pm\sqrt{620}}{10}$ oe or $\frac{-(-10)\pm\sqrt{(-10)^2-4\times5\times(-119)}}{2\times5}$ or $\frac{10\pm\sqrt{2480}}{10}$ oe	Can be implied by both x values correct or both y values correct eg $x=4.48...$ **and** $x=-0.48...$ **or** $y=-3.97...$ **and** $y=5.97...$

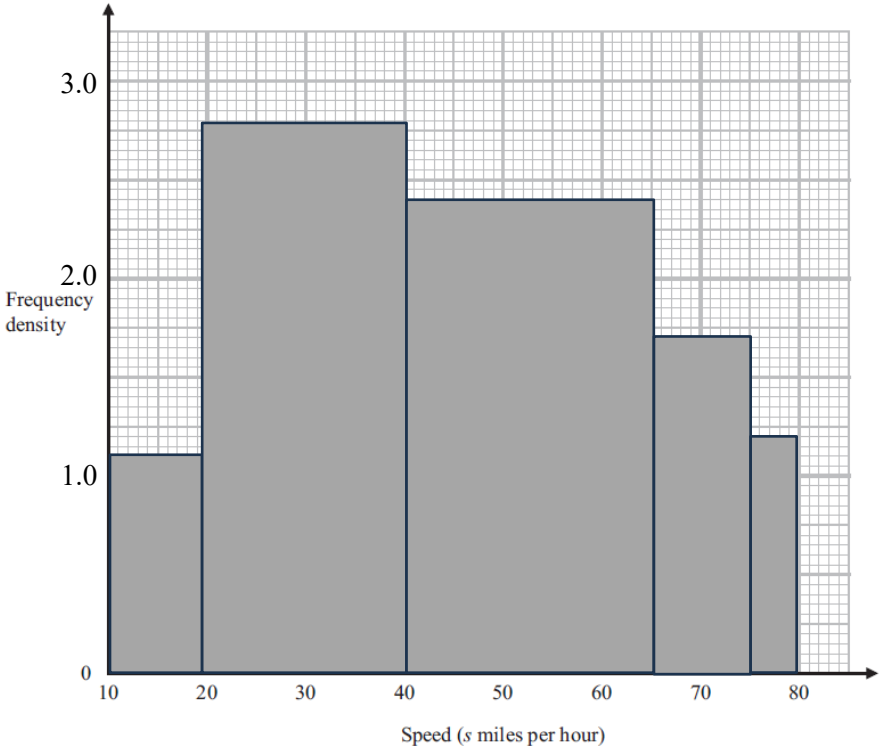
Question	Answer	Mark	Mark scheme	Additional guidance
21 cont.		P1	(dep on 1st P1) for substituting their 2 found values of x or y in a suitable equation **or** (dep on P1) for one correct pair of values following from a correct quadratic	**or** correct method after starting again Can use equation of circle also
		A1	(4.4899..., −3.979...) (−0.4899..., 5.979...)	Answers must be correctly paired. May be in the body of the working. Accept figures rounded or truncated to 2dp or better

Question 12(b)



Question 17(a)





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: ±5º
Measurements of length: ±5 mm

PAPER: 1MA1_2H			
Question		**Modification**	**Mark scheme notes**
3		Wording added: Look at the table for Question 3 in the Diagram Booklet. Table turned vertically.	Standard mark scheme
5		Wording added: 'Look at diagram 1 and diagram 2 for Question 5 in the Diagram booklet. Diagram 1 shows a rectangle with length 2x and width x – 4' Wording changed: 'Diagram 2 shows four of these rectangles and a shaded square used to make square ABCD'. Diagrams enlarged. Shading changed to dotty.	Standard mark scheme
8		Wording added: 'Look at diagram 1, diagram 2 and diagram 3 for Question 8 in the Diagram Booklet. You may also be provided with a model. Diagram 1 and the model show a solid cone. Diagram 2 shows a side view of the cone. Diagram 3 shows the base of the cone.' Diagram enlarged. 2D views added. Dashed lines made longer and thicker. Open headed arrows.	Standard mark scheme
10		Wording added: 'Look at the table for Question 10 in the Diagram Booklet.' Wording changed: 'Here' to 'Below' Wording added: 'in the Diagram Booklet'	Standard mark scheme
11	(a)	Letter 'x' changed to 'y'	Standard mark scheme but note the change of letter
12	(a)	Wording changed: 'Look at the table for Question 12 in the Diagram Booklet. It …' Word 'below' added 'Complete the frequency table below …' Frequency values in the table changed from 25, 40, 130, 55, 30, 20 to 25, 50, 125, 50, 25, 25.	B1 for 25, 75, 200, 250, 275, 300
	(b)	Wording changed 'Look at the diagram for Question 12(b) and 12(c) in the Diagram Booklet. It shows a grid. On the grid, draw a cumulative frequency graph for your table.' Diagram enlarged (2 cm grid).	Standard mark scheme but points plotted at heights 25, 75, 200, 250, 275, 300

PAPER: 1MA1_2H			
Question		**Modification**	**Mark scheme notes**
12	(c)	18 kilograms changed to 17.5 kilograms.	M1 for reading taken from the cf axis at point from a weight of 17.5 **or** ft their graph (if possible) M1 for a complete method eg ((300 – their reading) ÷ 300) × 100 A1 for answer in the range 21% to 27%
13		Wording added: 'Look at the diagram for Question 13 in the Diagram Booklet.' Wording changed: 'Dave has the seven cards shown in the diagram booklet.' Diagram enlarged.	Standard mark scheme
14		Wording changed: 'Here' to 'Below'	Standard mark scheme
15		Wording added: 'Look at the diagram for Question 15 in the Diagram Booklet. It shows a grid.' Diagram enlarged (1.5 cm grid). Open headed arrows. Shading changed to dotty.	Standard mark scheme
16	(a)	Wording changed: 'Look at the diagram for Question 16 in the Diagram Booklet. It is …' Diagram enlarged (2 cm squares). Open headed arrows. Graph changed to pass through (0, 0), (1, 50), (1.5, 100), (2, 250), (3, 350), (4, 450)	Standard mark scheme but note adjusted range, 120 to 150, for A1
	(b)	Graph changed to pass through (0, 0), (1, 50), (1.5, 100), (2, 250), (3, 350), (4, 450)	M1 for a method to find an estimate for the area of at least one strip, eg 0.5 × 50 (= 25) **or** 0.5 × 1 × (50 + 250) (= 150) **or** 0.5 × 1 × (250 + 350) (= 300) **or** 0.5 × 1 × (350 + 450) (= 400) M1 for a complete method, eg "25" + "150" + "300" + "400" A1 for 875

PAPER: 1MA1_2H			
Question		**Modification**	**Mark scheme notes**
17	(a)	Wording added: 'Look at the diagram for Question 17 in the Diagram Booklet. It shows a grid.' Diagram enlarged (2 cm grid). Open headed arrows. In the table: $20 < s \leq 40$ changed to $20 < s \leq 35$ and $40 < s \leq 65$ changed to $35 < s \leq 65$ Frequencies 11, 56, 60, 17, 6 changed to 15, 60, 45, 25, 5 Wording changed: 'below' to 'in the Diagram Booklet'	Standard mark scheme but note that relative heights are now 1.5, 4, 1.5, 2.5, 1
	(b)	35 changed to 25 and 50 changed to 45	M1 for a method to find number of people in one bar of the interval eg $\frac{2}{3} \times 60$ (= 40) **or** $\frac{1}{3} \times 45$ (= 15) M1 for a complete method, eg $\frac{2}{3} \times 60 + \frac{1}{3} \times 45$ A1 for 55
18		Wording added: 'Look at the diagram for Question 18 in the Diagram Booklet. Diagram enlarged. Angle moved outside of angle arc and angle arc made smaller. Shading changed to dotty.	Standard mark scheme
19		Wording added: 'Look at the diagram for Question 19 in the Diagram Booklet. It shows …' Diagram enlarged.	Standard mark scheme
20		Wording added: 'Look at diagram 1, diagram 2 and diagram 3 for Q20 in the Diagram Booklet. You may also be provided with a model. They are not accurate. Diagram 1 and the model show a solid pyramid ABCDE on horizontal ground. Diagram 2 shows a side view of the solid pyramid. Diagram 3 shows the base of the solid pyramid.' Diagram enlarged. Side view and base view added. Dashed lines made longer and thicker. Open headed arrows.	Standard mark scheme

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