Chhetri Academy

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GCSE MATHS

Algebra

Edexcel 1MA1 | Subtopic collection Topic 21

Inequalities

Foundation tier

Answers and examiner comments

11	2012-2025	Foundation
question groups	available papers	tier

Using this booklet

1. Answer numbers match the companion question booklet.
2. Follow the original question number on marking tables.
3. Examiner comments are included where available.

Name _____ **Date** _____

Some entries use full source marking material in an appendix. Any unavailable mark schemes are identified beside the relevant answer.

Question		Working	Answer	Mark	Notes
25	(a)		–1, 0, 1, 2, 3	2	B2 for all 5 correct values; ignore repeats, any order (B1 for 4 correct (and no incorrect values) eg. 0, 1, 2, 3 **or** one additional value, eg –1, 0, 1, 2, 3, 4)
	(b)		$-4 < x \leq 3$	2	B2 for $-4 < x \leq 3$ **or** > -4 **and** ≤ 3 (B1 for $-4 < x$ **or** $x > -4$ **or** $x \leq 3$ **or** $3 \geq x$ **or** > -4 **or** ≤ 3 **or** $-4 \leq x < 3$) (NB Accept the use of any letter)
	(c)	$3y - 2 > 5$ $3y > 7$	$y > \frac{7}{3}$	2	M1 for clear intention to add 2 to both sides (of inequality or equation) or clear intention to divide all terms by 3 **or** $3y > 7$ **or** $3y < 7$ **or** $3y = 7$ A1 $y > \frac{7}{3}$ **or** $y > 2\frac{1}{3}$ **or** $y > 2.\dot{3}$ NB. final answer **must** be an inequality (SC B1 for $\frac{7}{3}$ oe seen if M0 scored)

Question		Working	Answer	Mark	Notes
22	(a)		−3, −2, −1, 0, 1	2	B2 for all 5 values and no others (B1 for 4 correct values and no others or −4, −3, −2, −1, 0, 1 or −3, −2, −1, 0, 1, 2)
	(b)		$-2 \leq x < 4$	2	B2 for $-2 \leq x < 4$ (B1 for $-2 \leq x$ or $x < 4$ or $-2 < x \leq 4$) [Note: accept the use of any letter other than x throughout and ignore any attempt to list integer values]

26	(a)		Diagram	2	B2 for fully correct solution with all three aspects with no ambiguity Aspect 1: circle at 3 Aspect 2: circle not shaded Aspect 3: arrow pointing left indicating extension beyond −4 or line extending beyond −4 (B1 for any two aspects)
	(b)		$x \geqslant 5$	2	M1 for intention to add 7 to both sides (of inequality or equation) or to divide all 3 terms by 4 as a first step, or (x =) 5 A1 for $x \geqslant 5$ oe

Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

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

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
1		Diagram enlarged. Stick men changed to circles. Key moved above and to the left of the diagram.	Standard mark scheme
2	(a)	Line AB has been increased 8.5cm to allow for use of specialist equipment.	B1 for 8.5 ± 0.5, accept 8½
	(b)	Diagram enlarged.	B1 for obtuse
	(c)	Diagram enlarged.	B1 for 135 ± 5
4		Price list has been put into a table.	Standard mark scheme

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
5		3 patterns are placed vertically. Pattern number 3 is repeated below and labelled 'Pattern number 4 (not completed)' Wording altered: Pattern number 4 has been started below pattern number 3. Complete pattern number 4 on the diagram. 'Grey' wording changed to 'shaded' throughout. Shading changed to dotty shading.	Standard mark scheme
6		Table has been turned to vertical format.	Standard mark scheme
7		Grid has been enlarged.	Standard mark scheme
8	(a) (b)	Scale is drawn as a horizontal line labelled from 0 to 4 kg. Additional text added: It shows a scale. Scale is drawn as a horizontal line with measurements along it from 0 to 40kg.	Standard mark scheme
10		Diagram enlarged. '10cm' put inside the posts.	Standard mark scheme
11	(a) (c)	Braille only: h changed to q. MLP only: x changed to e and y changed to f.	Standard mark scheme

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
12		Diagram enlarged. Shading changed to dotty shading.	Standard mark scheme
13		Table has been turned to a vertical layout. Grid changed to 14 squares by 12 squares. Grid has been enlarged. Table values have been changed. Regular 4.5, 4.5, 3.5. Low fat 6.0, 5.5, 0.5.	Standard mark scheme using revised values
16		Diagram enlarged.	Standard mark scheme
17		Diagram enlarged. Axes labels have been moved to the top of the vertical axis and to the left of the horizontal axis. Right axis has been labelled.	Standard mark scheme

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
18	(a)	Two shapes are given on the grid, labelled Shape P and Shape Q. Question text has been changed to: 'Shape P has been mapped onto Shape Q. Describe fully the transformation that maps Shape P onto Shape Q.'	B1 for enlargement B1 scale factor 3
	(b)	Number of shapes to draw has been reduced to 5. A cut out shape is provided for all candidates. 1 column has been removed from the right hand side.	Standard mark scheme
20		Boxes have been removed around letters and numbers.	Standard mark scheme
22	(a)	The letter 'a' has been changed to't' for all candidates. Frequency numbers have been changed to 5, 15, 15, 20, 5.	Standard mark scheme using changed values
	(b)	Grid has been enlarged. Axes labels have been moved to the top of the vertical axis and to the left of the horizontal axis. Right axis has been labelled.	Standard mark scheme
23		Diagram has been enlarged. Shading changed to dotty shading.	Standard mark scheme
25		Diagram has been enlarged. Wording added 'Angle CEA is marked x.'	Standard mark scheme

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
26		Diagram has been enlarged. Wording added 'It shows a number line.'	Standard mark scheme

Original question 23

The full source mark scheme begins on page 23. Use the original paper code, tier and question number shown above.

17	(a)		$4(m + 3)$	B1	for $4(m + 3)$ or $2(2m + 6)$
	(b)		term, expression	B1 B1	for 'term' in the 1st space for 'expression' in the 2nd space

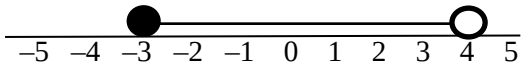
Paper: 1MA1/3F

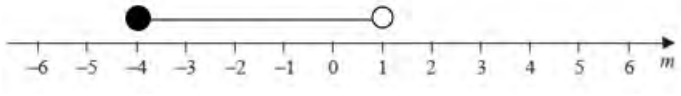
19	(a)	Inequality shown	B2	for fully correct solution with all three aspects with no ambiguity Aspect 1: circle at 4 Aspect 2: circle not shaded Aspect 3: arrow pointing left or line extending beyond −5, starting from their circle	Circling the number 4 alone scores B0 Aspect 1 and Aspect 2 must relate to the same circle.
			(B1	for any two aspects)	
	(b)	4,5,6,7	B2	for all four numbers in any order	
			(B1	for 2 or 3 correct values with no errors **or** 4 correct values with one extra)	
	(c)	$x \geq 6$	M1	for a correct intention to subtract 5 from both sides **or** a correct intention to subtract x from both sides	Can work with an equation for both M marks
			M1	for a full method to solve the inequality **or** showing a critical value of 6	Award 2 marks for an answer of x ? 6 where ? is an = or any incorrect inequality symbol, or for an answer shown as just 6.
			A1	cao	

Paper: 1MA1/3F

19	$-3 \leq p < 1$	C2 (C1	for $-3 \leq p < 1$ or $p \geq -3, p < 1$ oe for $-3 \leq p$ or for $p < 1$ or for $-3 < p \leq 1$ oe)	Accept use of a letter other than p.

Paper: 1MA1/1F

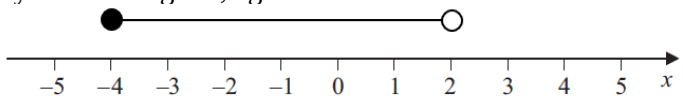
21	(a)	$x > -1$	B1	cao	
	(b)	Diagram drawn	C2	for a fully correct diagram, eg  	
			(C1	for drawing a line from −3 to 4 **or** (indep) for an open circle at 4 **or** (indep) for a closed circle at −3)	Condone arrow heads or line ending to denote the 'end' of the line

Question	Answer	Mark	Mark scheme	Additional guidance
23 (a)	4	B1	cao	
(b)	correct diagram	C2	for a fully correct diagram, eg 	
		(C1	for drawing a line from –4 to 1 **or** (indep) for an open circle at 1 **or** (indep) for a closed circle at –4)	Condone arrow heads or line ending to denote the 'end' of the line
(c)	$g < 25$	M1	for a correct first step, eg adding 4 to both sides, eg $\frac{2}{5}g < 6 + 4$ or multiplying throughout by 5, eg $2g - 4 \times 5 < 6 \times 5$ **or** dividing throughout by 2, eg $\frac{1}{5}g - 4 \div 2 < 6 \div 2$	Allow use of any inequality or as an equation for both method marks $\frac{2}{5}g < 10$ $2g - 20 < 30$ $\frac{g}{5} - 2 < 3$
		M1	for a correct second step, eg $2g <$ "10" $\times 5$ or $\frac{1}{5}g <$ "10" $\div 2$ **or** $2g <$ "30" + "20" or $g -$ "20" $\div 2 <$ "30" $\div 2$ **or** $\frac{g}{5} <$ "3" + "2" or $g -$ "2" $\times 5 <$ "3" $\times 5$ **or** showing 25 as the critical value	$2g < 50$ $\frac{g}{5} < 5$ $g - 10 < 15$ Can be written as $g = 25$
		A1	for $g < 25$ oe	

Paper: 1MA1/2F

23 (a)	Explanations	C2	for two different correct explanations **Acceptable examples** She should have a solid/full/shaded/coloured circle at 4 It does not show that x could be equal to 4 She should have marked/drawn a (clear/empty) circle at −3 The line should be drawn to –3 Jenna started from –2 not –3 **Not acceptable examples** Both circles should be black One circle should be filled in (needs to say which circle) She shouldn't have to reach number 4 Jenna has made no mistakes	Any incorrect statement as part of a correct response can be ignored unless it contradicts the statement,
		(C1	for one correct mistake described)	

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
(b)	4	M1	for a correct first step, eg for adding 7 to both sides $5y - 7 + 7 < 16 + 7$ or for dividing throughout by 5 eg $\frac{5y}{5} - \frac{7}{5} < \frac{16}{5}$ **or** for showing 4.6 (oe) as the critical value **or** for $5 \times 4 - 7$ with 13 seen as answer	Allow use of any inequality or as an equation for the first mark Award 1 mark for 4.6 oe, eg $y = \frac{23}{5}$ or $y < 4.6$
		A1	for 4 or $y = 4$ with no incorrect working	An answer of 4 from incorrect working can score 1 mark at most.

19	(a)	–2	B1	cao	
	(b)	Inequality shown	C2	for a fully correct diagram, eg 	
			(C1	for drawing a line from –4 to 2 **or** (indep) for an open circle at 2 **or** (indep) for a closed circle at –4)	Condone arrow heads or line ending to denote the 'end' of the line



Mark Scheme (Results)

Summer 2017

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



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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. (e.g.. 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 (e.g.. 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.

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
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: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
1 (a)		$3p$	B1	cao
(b)		$2m^3$	B1	cao
(c)		$10 - 4c + 6d$	M1	for $-4c$ or $6d$ (accept $+-4c$)
			A1	for $10 - 4c + 6d$
2		60	B1	cao
3 (a)		Walk	B1	cao
(b)		7 on chart	B1	for bar of height 7 drawn for girls walking
(c)		4	B1	cao
(d)		96	M1	for method to find number of Year 6 students in the survey e.g. $5 + 9 + 6 + 4 + 9 + 7 + 4 + 1 + 2 + 1$ (= 48) or $14 + 10 + 16 + 5 + 3$ (= 48)
			A1	for 96 or ft from (b), eg 82 if no bar in (b)
4		$\frac{11}{30}, \frac{2}{5}, \frac{7}{15}, \frac{1}{2}$	M1	converts fractions to a common form, e.g. fractions with a denominator of 30, decimals or percentages, at least two conversions correct or any 3 fractions in correct order
			A1	correct order

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
5 (a)		Monday wrong	C1	for seeing difference in tally marks and frequency for Monday
(b)		Comment	C1	for suitable comment, eg extra picture for Tuesday needed or explains that 0.5 of a CD is not possible
6		268.20	P1	for a process to work out the value of the £1 coins, eg. 495 ÷ 3 (= 165) or 495 × 0.33...or of the 50p coins, eg. 124 ÷ 2 (= 62)
			P1	for process to find the number of 20p coins, eg. (495 – 124 – (“165”) (= 206)
			P1	for complete process to find total value using consistent units., eg. (“165”) + (124 ÷ 2) + (“206” × 0.2) or 165 + 62 + 41.2
			A1	cao (accept 268.2)
7		0.985	B1	oe
8 (a)		25	B1	for 25 (accept 5^2)
(b)		24	B1	cao
(c)		23, 29	B1	for 23 and 29 and no extras
9		54	M1	for method to form equation, eg $90 + 2x + 3x = 360$ or for $360 – 90$ (= 270)
			M1	for $5x = 360 – 90$ or for $2x + 3x = 360 – 90$ or for $2x = 108$ or for $3x = 162$ or for $270 \div 5$
			A1	cao

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
10		Letters2send (supported)	P1	for the start of a process to find comparable costs at either shop, e.g. 150 ÷ 25 (= 6) or 150 ÷ 30 (= 5), 150 ÷ 10 (= 15), 2.10 ÷ 15 = (=0.14)
			P1	for process to find cost from Letters2send, e.g. (150 ÷ 25) × 3.49 (= 20.94)
			P1	for process to find cost at Stationery World, e.g. (150 ÷ 30) × 2 × 2.10 (= 21)
			C1	for correct conclusion with correct values from each shop (20.94 and 21)
				OR
			P1	for the start of a process to find comparable costs, eg 3.49 ÷ 25 (= 0.1396), 2.10 ÷ 10 (= 0.21), 25 ÷ 3.49 = (7.1...), 2.10 ÷ 15 = (= 0.14)
			P1	for process to take into account the offer at Stationery World, eg buy 30 envelopes pay for 20,
			P1	for complete process to find values that can be used for comparison, eg 30 × 0.13(96) and 2 × 2.10 (= 4.2(0))
			C1	for correct conclusion with correct values from each shop (4.1(88) and 4.2(0))

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
11 (a)		29	B1	answer in the range 29 to 30
(b)		186 to 195	M1	for changing 6ft 3 inches to inches e.g. $6 \times 12 + 3$ (= 75) or changing 1ft to 30 cm
			M1	for a method to convert to cm, e.g. 25 →63 then × 3, $6 \times 30 + \frac{1}{4} \times 30$
			A1	for answer in the range 186 to 195 or ft from correct use of graph
12		0.0733(03...)	M1 A1	for correct numerator (3.4496.....) or correct denominator (47.0596) or 0.073 for 0.0733(03.....)
13 (a)		Rotation	B2	for a fully correct rotation at (–4,–1), (–3,–1), (–4,–4), (–1,–2)
			[B1	for the quadrilateral in correct orientation and size or rotated 90° anticlockwise about the origin]
(b)		Reflection in the *y*-axis	B1	for reflection
			B1	for *y*-axis (or *x* =0)
				[A combination of transformations scores 0 marks]

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
14 (a)		$5(1 - 2m)$	B1	cao
(b)		$2ab(a + 3b)$	M1	for $2a(ab + 3b^2)$ or $2b(a^2 + 3ab)$ or $ab(2a + 6b)$ or $2ab$(2 term expression with terms in a or b or ab, can include constants), eg $2ab(1a + 3ab)$, $2ab(1 + 3b)$
			A1	for $2ab(a + 3b)$
15 (a)		0.47	B1	
(b)		2.28×10^9	M1	for correct value but not in standard form, eg $22.8 \times 10^{3+5}$, 228×10^7, 2 280 000 000 or for 2.28×10^n , $n \neq 9$
			A1	cao
16		T shown on the map	C1	for showing a perpendicular bisector or point T equidistant from points B and C.
			C1	for a circle or arc of circle of radius 2.5 cm or point T 2.5 cm from point A
			C1	for T shown in correct position

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
17		98	P1	for process to find P(1), e.g. 1 – 0.17 – 0.18 – 0.09 – 0.15 – 0.1 (= 0.31) or for a process to find P(1 or 3), e.g. 1 – 0.17 – 0.09 – 0.15 – 0.1 (= 0.49)
			P1	for process to find the number of 3s, e.g. 0.18 × 200 (=36) or process to find the number of 1s, e.g. P(1) × 200 (= 62), or process to find the number of (1 or 3)s, eg [P(1) + 0.18] × 200 or process to find any expected frequency, using any probability × 200, eg 0.17 × 200
			A1	cao
				OR
		98	P1	for process to find P(2 or 4 or 5 or 6), eg 0.17 + 0.09 + 0.15 + 0.1 (= 0.51)
			P1	for process to find the number of (2 or 4 or 5 or 6)'s, eg "0.51" × 200 (= 102)
			A1	cao

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
18		Yes (supported)	P1	for process to work out the total number of children, e.g. 117 × 4 (= 468)
			P1	(dep P1) for process to work out total number of adults or the total number of people, e.g. "468" × 5 ÷ 2 (= 1170) or "468" × 7 ÷ 2 (= 1638)
			A1	for 1170 or 1638
			P1	for process to work out the percentage of theatre full, e.g. $\frac{"468"+"1170"}{2600} \times 100$ (= 63) or for a process to work out 60% of 2600 (= 1560)
			C1	for a correct conclusion supported by correct figures e.g. 63% or 1560 **and** 1638
				OR
			P1	for a process to work out 60% of 2600, eg. $\frac{60}{100} \times 2600$ (= 1560)
			P1	(dep P1) for process to work out total number of children, e.g. "1560" × 2 ÷ 7 (= 445(.7...)
			A1	for 445(.7...)
			P1	for process to work out number of children in the circle, eg. "445(.7...)" ÷ 4 (= 111 to 112)
			C1	for a correct conclusion supported by correct figures e.g. 111 to 112
				[Where appropriate, accept rounded or truncated values]

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
18 cont.				OR
			P1	for a process to find the maximum number of children, eg. 2600 × 2 ÷ 7 (= 742(.8…))
			P1	for process to work out the total number of children, e.g. 117 × 4 (= 468)
			A1	for 468 and 742(.8...)
			P1	for $\frac{"468"}{"742(.8..)"} \times 100$ (= 63) or process to work out 60% of "742.8.." (= 445(7..))
			C1	for a correct conclusion supported by correct figures e.g. 63% or 468 and 445(.7...)
				[Where appropriate, accept rounded or truncated values]
19		Side elevation	C2	for the side elevation (4 cm by 2 cm rectangle with a solid line drawn 1 cm from the 2 cm edge, and correct orientation)
			[C1	for the side elevation as a rectangle]
		Front elevation	C2	for the front elevation as a trapezium in correct orientation with base 4 cm, parallel sides 1 cm and 4 cm
			[C1	for the front elevation as a trapezium with two right angles]
				[Ignore incorrect or no labelling]

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
20 (a)		57.1	P1	for a process to find time from Liverpool to Manchester, eg. 56 ÷ 70 (= 0.8 (hrs) or 48 (mins))
			P1	for a process to find the total distance, eg 56 + 61 (= 117) or the total time, eg"48" + 75 (= 123) or "0.8" + $\frac{75}{60}$ (= 2.05), with consistent units of time
			P1	(dep P2) for a correct process to find average speed with consistent units of time, eg."117" ÷ "2.05" or ."117" ÷ "123"
			A1	for answer in the range 57 to 57.1
(b)		explanation	C1	for explaining that the time taken for the two parts of the journey must be the same or the distance from Leeds to York is $\frac{3}{4}$ the distance from Barnsley to York oe
21 (a)		3.9	M1	for a ratio of $\frac{8.1}{5.4}$ (= 1.5) oe or $\frac{5.4}{8.1}$ (= 0.66..) oe or $\frac{2.6}{5.4}$ (= 0.48..) oe or $\frac{5.4}{2.6}$ (= 2.07..) oe
			A1	cao
(b)		2.05	M1	for $\frac{5.4}{8.1} \times 6.15$ (= 4.1) or $\frac{2.7}{8.1} \times 6.15$ oe or ft "scale factor" from (a)
			A1	cao

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
22		Secure Bank (supported)	P1 P1 C1	for a process to work out the interest after one year e.g. 0.02×25000 (= 500) or 0.043×25000 (= 1075) or for 1.02 or 25500 or 1.043 or 26075 for process to find value of the investment after 3 years or the multiplicative factor for 3 years at one of the banks, e.g. $25000 \times 1.02 \times 1.02 \times 1.02$ oe (= 26530...) or 1.02^3 (= 1.0612...) or $25000 \times 1.043 \times 1.009 \times 1.009$ oe (= 26546...) or $1.043 \times 1.009 \times 1.009$ (= 1.0618.....) [accept total interest of 1530...or 1546...if final values of investment are not found] for Secure Bank from correct figures eg 26530.. and 26546..or 1530.. and 1546.. or 1.0612.. and 1.0618
23		$4.755 \leq n < 4.765$	B2 [B1	for $4.755 \leq n < 4.765$ for 4.755 or 4.765 or 4.764$\dot{9}$]
24		$x = -8$, $x = 3$	M1 M1 A1	for factorisation or for substitution into quadratic formula $(x \pm a)(x \pm b)$ where product of a and b = 24, eg $(x \pm 4)(x \pm 6)$ or difference of a and b = 5, eg $(x \pm 2)(x \pm 7)$ $\frac{-5 \pm \sqrt{5^2 - 4 \times 1 \times -24}}{2}$ oe (condone one sign error) for $(x + 8)(x - 3)$ or for $\frac{-5 \pm \sqrt{121}}{2}$ oe cao

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
25 (a)		$5n - 2$	B2	for $5n - 2$ oe
			[B1	for $5n + k$, k may be 0]
(b)		No (supported)	C1	for No with evidence, e.g. $3 \times 4^2 = 48$, $\sqrt{48}$ is not an integer, he has multiplied by 3 first but should have squared first

Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

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

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
1	(c)	MLP and braille: *c* and *d* changed to *s* and *t*.	Standard mark scheme but change *c* & *d* to *s* & *t*
3		Grid enlarged. Key moved above the diagram. Right axis has been labelled. Boys shading has been changed to dotty. The vertical axis label has been moved above the vertical axis	Standard mark scheme
5	(b)	Pictogram enlarged. Key moved above the diagram.	Standard mark scheme
8		Wording 'nine' added	Standard mark scheme
9		Diagram enlarged. Angle sizes moved outside the angle arcs; the arcs have been made smaller.	Standard mark scheme
11		Grid enlarged. Right axis labelled. Axes labels have been moved to the left of the horizontal axis and above the vertical axis. In (a) Number '74' changed to '90'.	(a) becomes 35 to 37. In (b) suggest 180 to 200
13	(a)	Question reversed. Rotation drawn on the diagram and labelled as 'shape B'. Grid enlarged and *y* axis reduced so it finishes at 2. Shapes labelled 'shape A' and 'shape B'. Wording changed 'It shows shape A and shape B given on a grid. Describe fully the single transformation that maps shape A onto shape B.'	Award B1 for "rotation" Award B1 for "90° clockwise about centre O [or (0,0)] NB: award B0 for any indication of a mention of other transformations
13	(b)	Grid enlarged and y axis reduced so it starts at -2. Wording 'B' and 'C' deleted and shapes labelled as 'shape P' and 'shape Q'. Triangles P and Q moved above the *x* axis. Wording added 'It shows shape P and shape Q given on a grid.'	Standard mark scheme

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
14	(b)	MLP only: *a* changed to *x* and *b* changed to *y*.	Standard mark scheme but change *a* & *b* to *x* & *y*
16		Number '250 metres' changed to '500 metres'. Points *B* and *C* moved to the right to allow for use of specialist equipment. Points *B* and *C* joined with a line. Scale moved above the diagram.	Standard mark scheme, but given the alternations to the given diagram, the relative positions of any constructions and the position(s) of *T* will change.
17		Table turned to vertical format.	Standard mark scheme
19		Alternative question. Model has been provided for all candidates. Diagram enlarged and also provided for MLP. The measurements on the prism have been doubled. Wording added next to the diagram of the trapezium 'Diagram NOT accurately drawn'. Four shapes have been provided below the trapezium labelled A to D. Wording added above the four shapes 'scale: 2 cm to 1 metre'. Question wording has changed and has been split into two parts: 'Look at the model or at the diagrams for Question 19 in the Diagram Book. They show a prism with a cross section in the shape of a trapezium. All measurements are in metres. Below the prism there are four shapes A, B, C and D. (i) Which shape shows the front elevation of the prism? (ii) Which shape shows the side elevation of the prism?'	Mark scheme amended as follows: (i) B2 for C (ii) B2 for A (B1 for B or D)
21		Diagram enlarged. Measurements '2.6 cm' and '5.4 cm' added to the diagram.	Standard mark scheme

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Question 19

This question was not well done with only a small proportion of students gaining any marks and few students gaining two marks. The great majority of responses were in a form connecting the two numbers –3 and 1 with an inequality sign (often incorrect), for example $-3 \leq 1$. Such responses could not be given any marks. A number of students listed integer values only.

Question 21

The first part of this question was beyond most students and many failed to use any reasonable inequality notation.

In part (b) The most commonly awarded score was 1 mark for either a line of the correct length and position, a closed circle at −3 or an open circle at 4, which was seen less frequently. Some knowledge of inequalities was demonstrated but the accuracy mark was often lost due to not knowing how to translate the inequality symbols into open and closed circles correctly. Whilst it was common to see a circle shown at −3, sometimes correctly closed, the majority of incorrect answers terminated the line with an arrowhead at the number 4.

Question 23

Mixed responses were seen in part (a). Some students understood the concept but didn't write down an integer and gave responses such as 4.9.

In part (b), most students were able to demonstrate some knowledge of inequalities, but the accuracy mark was often lost due to not knowing how to interpret the inequality symbols correctly by use of open and closed circles. Just giving a line was the most common response by those students who attempted this part of the question. However, some students drew a line from −4 to 0 or −4 to −1, indicating that the inequalities were not being interpreted correctly. If only one circle was correct it was more often the closed circle at −4. Of the students scoring no marks, common answers included: a cross at −1½, lines from −3 to 0 or from −4 to 0, lines that start correctly at one end but end with an arrow at the other, and lines which extend beyond one of the endpoints.

A common misconception noted was the students treating it as two separate inequalities by drawing two circles and two lines with direction. Some students tended to use two arrows to help with the direction of each part of the inequality, again not realising that it was one inequality.

To improve performance of this familiar skill, centres should emphasise the need for a single line connecting both circles rather than two separate lines. Centres could also focus on stating integer values represented by the inequality as this would help students appreciate that the number lies between these two values and should not be represented by two inequalities.
The final part of this question was not answered well, with most scoring no marks. The fraction part of the inequality seemed to confuse many students. Those who started trying to reverse this part of the process were usually unsuccessful due to either changing the fraction to 10 from multiplying the numerator and denominator or multiplying by 5 but omitting the 2 from the next stage of their calculations. However, converting to 0.4 was seen often and being a calculator paper, by following algebraic processes and using the calculator for calculations, students should have been able to reach 25, but a surprising number who used 0.4 did not. The intention to use a correct first step was often carried out incorrectly, contradicted or carried out on one side only. For those who chose to begin by correctly adding 4 to both sides, many were then unable to continue correctly and deal with the fractional element. Finally, for those who had replaced the '<' with an '=' in the working, most remembered to return it for the answer. However 25 alone was seen on the answer line more often than the correct answer when marks were awarded.

Question 23

In general part (a) of this question was well answered with most candidates picking up at least one mark for stating that the inequality should have been drawn from -3 and/or that the circle at 4 should have been shaded/coloured. Again, as usual, sometimes responses lacked detail and were not precise enough which meant that the mark was not awarded. Examples included: "the circle was not shaded" or "the line was not long enough" or "the circle was not drawn at the correct number". Some candidates chose to correct the diagram and re-drew the correct inequality, with or without an explanation. In both these cases the marks were awarded when it was clear and when there was no contradiction.
In part (b) few candidates scored full marks. The most common responses scored M1 for finding the critical value of 4.6. A few candidates who got this far then stated 5 instead of 4 as the greatest integer. A common error seen was where candidates subtracted 7 rather than adding (scoring 0). There were fewer embedded answers seen this year, showing candidates were using more formal methods.

Question 19

In part (a) a correct answer of -2 was required to gain the mark. It was common to see an incorrect answer of -3 due to not understanding that the solid circle meant that -2 was included or to give an answer of 5 because this was the largest number on the number line.

Responses to part (b) were much more successful though, with the correct line and circles frequently being shown to gain both of the marks available. When responses were not completely correct, 1 mark was often awarded for either a correct line from -4 to 2 or for one correct endpoint being indicated. Some learners used arrows instead of circles, which were not accepted for full marks in bounded inequalities. Another common cause of a mark not being awarded was often due to not showing a clear line between the two circles, often attempting to use the number line to show this which is not accepted. Although the line should be drawn as a straight line, learners who drew curved lines between -4 and 2 were not penalised.