Chhetri Academy

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GCSE MATHS

Algebra

Edexcel 1MA1 | Subtopic collection Topic 20

Simultaneous equations

Foundation tier

Answers and examiner comments

9	2017-2025	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.

16		$x = -\frac{2}{3}$ $y = -2$	M1 M1 A1	for a method to eliminate one variable (condone one arithmetic error) (dep) for substituting found value in one of the equations or appropriate method after starting again (condone one arithmetic error) $x = -\frac{2}{3}$ oe and $y = -2$

Paper: 1MA1/3F

Question	Working	Answer	Mark	Notes
27		$x = 1.5$, $y = 3.5$	M1	for correct method to eliminate one variable (condone one arithmetic error)
			M1	(dep) for substituting found value in one of the equations or correct method after starting again (condone one arithmetic error)
			A1	for both $x = 1.5$ and $y = 3.5$

Question 20

London	1.089 × 1.46 = \$1.58(9..) per litre	→	1.589... × 3.785 = \$6.01(7..) per gallon
	1.089 × 3.785 = £4.12(1..) per gallon	→	4.121... × 1.46 = \$6.01(7..) per gallon
New York	2.83 ÷ 1.46 = £1.93(8..) per gallon	→	1.938... ÷ 3.785 = £0.51(2..) per litre
	2.83 ÷ 3.785 = \$0.74(7..) per litre	→	0.747... ÷ 1.46 = £0.51(2..) per litre

The table shows the most commonly used approaches. There are of course other approaches that can be used.

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

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Measurements of length: ±5 mm

PAPER: 1MA1_3F			
Question		**Modification**	**Mark scheme notes**
6		Diagram enlarged. Key moved above and to the left of the diagram. Question wording changed: 15 changed to 14 so that candidates only have to draw half a circle instead of three quarters of a circle. The bike wheels have been replaced by a circle. Braille only: will have one horizontal line and one vertical line separating the circle into 4 sections. Braille will also add one whole circle in the key.	Standard mark scheme but now 3 ½ circles for Saturday. Note the simplification of the key for Braille. Accept a key drawn with quarter circles instead of the full bicycle wheel
7		Diagram enlarged. Angles moved outside of the angle arcs and the angle arcs made smaller. Braille only: will add information about the diagram.	Standard mark scheme
8		Diagram enlarged x3 exactly and simplified	Standard mark scheme
13	(a)	Wording added 'There are four spaces to fill.' Table turned to vertical format. Wording added 'below.'	Standard mark scheme
	(c)	Diagram enlarged.	Standard mark scheme with additional tolerance on reading off.

PAPER: 1MA1_3F			
Question		**Modification**	**Mark scheme notes**
14		Diagram enlarged. Wording added 'It shows shape A and shape B given on a grid.' *x* axis changed to go from -2 to 8. Shape A moved to (2, 3) (2, 1) (6, 3) (6, 2). Shape B move to (2, -1) (2, -3) (6, -2) (6, -3).	Standard mark scheme
15		Wording added 'There are seven spaces to fill.' Table turned to vertical format. Braille: will label the answer spaces: Cotton fabric / Silk fabric 2m £6 (i) 6m (ii) (iii) 8m (iv) (v) 9m (vi) (vii)	Standard mark scheme
16		Model provided for all candidates. Diagram enlarged and also provided for MLP. Information left aligned.	Standard mark scheme
18		Diagram enlarged. Diagram labels moved to the left of the diagrams. Diagrams have been stacked vertically.	Standard mark scheme
19		Numbers in the table have changed to: 130-140: **5**; 140-150: **10**; 150-160: **20**; 160-170: **30**; 170-180: **15** In part (b) Diagram enlarged. Right axis has been labelled. Axes labels moved to the left of the horizontal axis and above the vertical axis. Vertical axis extended so it goes up to 35.	Standard mark scheme with the amendment: Line segments joining the points (135, 5), (145, 10), (155, 20), (165, 30) and (175, 15)
24		Diagram enlarged. Wording added 'Diagram (i) shows'. Shape labelled as 'Diagram (i)'. Wording added 'Diagram (ii)' after '8-sided shape,' Shape labelled as 'Diagram (ii)'.	Standard mark scheme

Paper: 1MA1/1F

Question	Answer	Mark	Mark scheme	Additional guidance
25	$x = 4.5$, $y = -1.5$	M1	correct process to eliminate one variable (condone one arithmetic error)	
		M1	(dep) for substituting found value in one of the equations **OR** correct process after starting again (condone one arithmetic error)	
		A1	for $x = 4.5$, $y = -1.5$ oe	Fractions do not need to be in simpleast form

Question	Answer	Mark	Mark scheme	Additional guidance
30	$x = 1, y = -2$	M1	for a correct method to eliminate either x or y or method leading to substitution (condone one arithmetic error)	
		M1	(dep M1) for substituting found value in one of the equations **OR** correct method after starting again (condone one arithmetic error)	
		A1	cao	

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

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Measurements of length: ±5 mm

PAPER: 1MA1/3F			
Question		**Modification**	**Mark scheme notes**
4		Wording added 'eight'.	Standard mark scheme
7		Table turned vertical.	Standard mark scheme
8		Diagram enlarged. Labels moved above the gauge. Shading changed to dotty shading.	Standard mark scheme
9		Braille only: *e* changed to *s*, *f* changed to *t*.	Standard mark scheme, but see note for Braille
16		Diagrams enlarged, labelled as Diagram 1 and Diagram 2. Wording added 'Diagram 1 shows a rectangle with length 6 cm and width 4 cm.' Wording changed to 'Below Diagram 1, Diagram 2 shows a 6-sided shape made from two of these rectangles.'	Standard mark scheme
17		Diagram enlarged and simplified.	Standard mark scheme
20		Diagram enlarged.	Standard mark scheme
23		Information moved to Diagram Book	Standard mark scheme

PAPER: 1MA1/3F			
Question		**Modification**	**Mark scheme notes**
24		Diagram enlarged. Wording added 'It shows an incomplete Venn diagram.' Ovals made circular. Regions labelled 'Set A' and 'Set B' on the diagram. Braille only – spaces labelled (i) to (iv).	Standard mark scheme
26		Frequency column widened. The first two numbers in the table changed to 8 and 12 In part (b) diagram enlarged. Right axis labelled. Scale changed. Axes labels moved to the left of the horizontal axis and above the vertical axis.	Standard mark scheme but the first two points plotted in (b) should be at (15,8) and (25,12)
27		Diagram enlarged. Crosses changed to solid dots. Axes labels moved to the left of the horizontal axis and above the vertical axis.	Standard mark scheme
28		Wording added '*ABCDEF*'. Diagram enlarged. Angle moved outside of the angle arc and the angle arc made smaller.	Standard mark scheme
29		Diagram enlarged and labelled as Diagram1. Inside the cylinder labelled as 'Tank'. Diagram of the circular face added and labelled as Diagram 2. Wording added 'Diagram 1 shows a tank.' Wording changed to 'Each tank is in the shape of a cylinder with both a top and a bottom as shown in Diagram 2'. Model of Diagram 1 provided for Braille candidates only.	Standard mark scheme

28	(a)	−2, 4	B1	cao	
	(b)	0.55 to 0.65, 3.35 to 3.45	M1	for correct method, eg marking intercepts with *x*-axis or one correct answer or both solutions given as a coordinate eg (0.6, 3.4) or (0.6, 0) (3.4, 0)	If answers are stated as coordinates, award M1 for both coordinates and M0 for one coordinate.
			A1	for answers in the ranges 0.55 to 0.65 and 3.35 to 3.45	With no extras

28	$x = 6.5$, $y = -2.75$	M1 M1 A1	for a correct method to eliminate either x or y or method leading to substitution (dep) for substituting found value in one of the equations **OR** correct method after starting again for $x = 6.5$, $y = -2.75$ oe	(condone one arithmetic error) (condone one arithmetic error)

QUESTION 27 - Additional information NOT Exhaustive

Cost per litre in £: 27 × 0.85 (=22.95) "22.95" ÷ 18 (=1.275) 8 × 4.5 (=36) No **and** 40.8 ÷ "36" = 1.133.. (cost per litre in £ in Wales) compared to 1.275 (cost per litre in £ in Spain).	**Cost per litre in euros:** 27 ÷ 18 (=1.5) 8 × 4.5 (=36) 40.8 ÷ 0.85 (= 48) No **and** "48" ÷ "36" = 1.333.. (cost per litre in euros in Wales) compared to 1.5 (cost per litre in euros in Spain).
Cost per gallon in £: 40.8 ÷ 8 (=5.1) 27 × 0.85 (=22.95) 18 ÷ 4.5 (= 4) No **and** "22.95" ÷ "4" = 5.7375 (cost per gallon in £ in Spain) compared to 5.1(0) (cost per gallon in £ in Wales).	**Cost per gallon in euros:** 40.8 ÷ 0.85 (=48) "48" ÷ 8 (= 6) 18 ÷ 4.5 (=4) No **and** 27 ÷ "4" = 6.75 (cost per gallon in euros in Spain) compared to 6 (cost per gallon in euros in Wales). **Note:** "2" comes from 8 ÷ "4" or "36" ÷ 18
Cost of 8 gallons in £: 18 ÷ 4.5 (= 4) 27 × 0.85 (=22.95) "22.95" × "2" (=45.90) No **and** 45.90 (total cost in £ in Spain) compared to 40.80 (total cost in £ in Wales given).	**Cost of 8 gallons in euros:** 18 ÷ 4.5 (=4) 40.8 ÷ 0.85 (=48) 27 × "2" (= 54) No **and** 54 (cost for 8 gallons in euros in Spain) compared to 48 (cost of 8 gallons in euros in Wales).
Cost of 18 litres in £: 8 × 4.5 (= 36) 40.8 ÷ "2" (= 20.4) 27 × 0.85 (= 22.95) No **and** 22.95 (cost for 18 litres in £ in Spain) compared to 20.40 (cost of 18 litres in £ in Wales). **OR** 18 ÷ 4.5 (= 4) 27 × 0.85 (= 22.95) 40.8 ÷ "2" (= 20.4) No **and** 22.95 (cost for 18 litres in £ in Spain) compared to 20.40 (cost of 18 litres in £ in Wales).	**Cost of 18 litres in euros:** 18 ÷ 4.5 (=4) 40.8 ÷ 0.85 (=48) "48" ÷ "2" (= 24) No **and** 24 (cost for 18 litres in euros in Wales) compared to 27 (cost of 18 litres in euros in Spain given). **OR** 8 × 4.5 (= 36) 40.8 ÷ "2" (= 20.4) "20.4" ÷ 0.85 (= 24) No **and** 24 (cost for 18 litres in euros in Wales) compared to 27 (cost of 18 litres in euros in Spain given).

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

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Angles: ±5°
Measurements of length: ±5 mm

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
2		Wording added '…to make the calculation below correct.' Braille: the text frame replaced with a blank space indicator. "Ans: __" added.	Standard mark scheme
3		Wording added 'Below is a list of nine numbers.'	Standard mark scheme
6		Wording added 'Write the six numbers below in order of size.'	Standard mark scheme
7		Wording added 'Look at the diagram for Question 7 in the Diagram Booklet. It shows…' Diagram enlarged. Shading changed. Braille|: Sentence changed to "The diagram shows polygon ABCDEF on a square grid."	Standard mark scheme
8	(a)	Wording added 'Look at the diagram for Question 8 in the Diagram Booklet. It shows point A on a grid.' The wording 'Here is a centimetre grid' replaced by '1 square length on the grid represents 1 cm.' The axes labels moved to the top of the vertical axis and to the right of the horizontal axis. Open headed arrows. Diagram enlarged. Change the crosses to dots.	Standard mark scheme
8	(b)	Wording added 'On the grid in the Diagram Booklet, mark the point…'.	Standard mark scheme
8	(c)	Wording added 'On the grid in the Diagram Booklet,'	Standard mark scheme
9		Wording added 'Look at the diagram for Question 9 in the Diagram Booklet. It is a graph which shows…'. The small grid lines removed and intermediates added at intervals of 5. Some values changed so that they can be read on a grid line. Diagram enlarged. February changed to 25. June changed to 55. The axes labels moved to the top of the vertical axis and to the left of the horizontal axis. Open headed arrows. Right axis labelled. The crosses changed to dots.	(a) B1 for 25 cao (b) M1 for 10 or 55 identified A1 for 10 : 55 or any other equivalent ratio

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
11		Wording added 'Look at the diagram for Question 11 in the Diagram Booklet. It shows…'. Diagram enlarged. The angles moved outside of the angle arcs and the angle arcs made smaller. Wording added: 'Angle *BAC* = 116° Angle *ABC* = 25° Angle *ECD* is marked *x*'. Braille: Extra information added: "In the diagram: ACD and BCE are straight lines"	Standard mark scheme
12	(a)	Wording added 'Look at the diagram for Question 12(a) in the Diagram Booklet. It shows a number machine.'; Diagram enlarged. Braille: frames removed.	Standard mark scheme.
12	(b)	Wording added 'Look at the diagram for Question 12(b) in the Diagram Booklet. It shows a different number machine.'; Diagram enlarged. Wording added 'Complete the number machine in the Diagram Booklet.' Braille: Boxes removed. In the blank space (i) added, and "Ans: (i) __"	Standard mark scheme

<table>
<tr><th colspan="4">PAPER: 1MA1_2F</th></tr>
<tr><th colspan="2">Question</th><th>Modification</th><th>Mark scheme notes</th></tr>
<tr><td>13</td><td></td><td>Wording added ‘Look at the incomplete two-way table for Question 13 in the Diagram Booklet.’
Wording added ‘…to complete the two-way table in the Diagram Booklet. There are twelve spaces to fill.’
Braille:
<table><tr><td></td><td>With mattress</td><td>Without mattress</td><td>Total</td></tr><tr><td>Single</td><td>(iv)</td><td>17</td><td>(iii)</td></tr><tr><td>Double</td><td>(viii)</td><td>(vii)</td><td>45</td></tr><tr><td>King size</td><td>67</td><td>(vi)</td><td>83</td></tr><tr><td>Total</td><td>(v)</td><td>(ii)</td><td>(i)</td></tr></table>
Add “Ans: (i) __ (ii) __ (iii) __ (iv) __ (v) __ (vi) __(vii) __ (viii) __”</td><td>Standard mark scheme
but for Braille:
B3 for a fully correct set of values
(B2 for at least 4 values given)
(B1 for (i) as 198 and (ii) as 59)
Values:
(i) 198 (ii) 59 (iii) 70 (iv) 53
(v) 139 (vi) 16 (vii) 26 (viii) 19</td></tr>
<tr><td>14</td><td></td><td>Wording added ‘Below are three mathematical symbols.’ The frame removed.
Wording added ‘Choose a symbol to make…’.
Braille: “From the box, …” changed to “From the list, …”</td><td>Standard mark scheme</td></tr>
<tr><td>15</td><td></td><td>Wording added ‘Look at the table for Question 15 in the Diagram Booklet. It shows…’.</td><td>Standard mark scheme</td></tr>
</table>

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
17		Wording added 'Look at the diagram for Question 17 in the Diagram Booklet. It shows a grid.' Wording 'On the grid below' removed and replaced by 'On the grid in the Diagram Booklet'. Wording added 'Space for working.' The grid cut at $y = 7$ and $y = -2$. The intermediate lines removed at intervals of 0.5. Diagram enlarged. Open headed arrows. The axes labels moved to the top of the vertical axis and to the right of the horizontal axis. Braille: provided with a vertical table of values with the y values to be added with the words "You may use the table below to help you if you wish."	Standard mark scheme
18		Wording added 'Look at the information for Question 18 in the Diagram Booklet. It shows a sign that was in a doctor's waiting room'; Frame removed. Braille: Sentence changed to "The statement below was posted in a doctor's waiting room."	Standard mark scheme
20		Wording added 'Look at the diagram for Question 20 in the Diagram Booklet. It shows an incomplete probability tree diagram.'; Diagram enlarged. Wording added 'Complete the probability tree diagram in the Diagram Booklet. There are three spaces to fill.' Braille: (i), (ii) & (iii) in the blank spaces and "Ans: (i) __ (ii) __ (iii) __"	Standard mark scheme
21	(b)	The letter x changed to y.	Standard mark scheme but note change of letter.
22		Wording added 'Look at the diagram for Question 22 in the Diagram Booklet. It shows shape S and shape T on a grid. A cut out shape may be available if you wish to use it.' Cut out shape provided. Diagram enlarged. Shading changed. The axes labels moved to the top of the vertical axis and to the right of the horizontal axis. Open headed arrows. The shapes labelled as 'shape T' and 'shape S'.	Standard mark scheme

28	$x = 6$ $y = -2$	B1	cao	

Paper: 1MA1/1F

30	$x = -2$ $y = 1.5$	M1 M1 A1	for correct method to eliminate either x or y or a method leading to substitution (dep M1) for substituting found value in one of the equations **or** correct method after starting again for $x = -2$ and $y = 1.5$ oe	condone one arithmetic error condone one arithmetic error

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

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PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
7	(a)	Wording added 'Look at the diagram for Question 7(a) in the Diagram Booklet. You may be provided with a model. It is NOT accurate. They show'. Wording removed 'Here is'; Diagram enlarged. Dashed lines made longer and thicker.	Standard mark scheme
	(b)	Question replaced with a diagram of a triangular prism and possibly a model. "Write down the number of vertices of the prism."	B1 for 6
8		Wording added 'Look at the table for Question 8 in the Diagram Booklet.' Wording 'Here is' removed and replaced with 'The table in the Diagram Booklet shows'. Table enlarged.	Standard mark scheme
9		Wording added 'Look at the table for Question 9 in the Diagram Booklet.' Wording added 'as shown in the table in the Diagram Booklet.' Table enlarged.	Standard mark scheme
13	(a)	Wording added 'Look at the diagram for Question 13 in the Diagram Booklet. It shows a rectangle 5 cm long and 4 cm wide.' Wording 'this' removed and replaced with 'the'. Diagram enlarged.	Standard mark scheme
16		Wording added 'Look at the information for Question 16 in the Diagram Booklet. 160 people were asked to choose their favourite type of book. They each chose from romance or adventure or horror or thriller.' Information moved to the Diagram Booklet.	Standard mark scheme
17		Wording added 'Look at the diagram for Question 17 in the Diagram Booklet. It shows an incomplete stem and leaf diagram.' Wording 'a' removed and replaced with 'the'. Wording added 'in the Diagram Booklet'. Diagram enlarged. Key moved above and left of diagram. Horizontal line added on the bottom of the stem and leaf diagram so the candidates have a line to write on.	Standard mark scheme
19		Wording added 'Look at the diagram for Question 19 in the Diagram Booklet. It'. Wording removed 'The diagram'. Diagram enlarged. Angles moved outside of angle arcs and angle arcs made smaller. Right angle made more obvious. Wording added 'Angle ABD is a right angle. Angle EAB is marked x.'	Standard mark scheme
20	(a)	Wording added 'There are four spaces to fill.' Table turned vertically and enlarged. For Braille (i), (ii), (iii), (iv) added to the table for missing values.	Standard mark scheme
20	(b)	Wording added 'Look at the diagram for Question 20(b) in the Diagram Booklet. It is a grid.' Diagram enlarged. Small squares removed. Axis labels moved to the top of the vertical axis and to the right of the horizontal axis.	Standard mark scheme

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
1		Wording added 'Look at the diagram for Question 21 in the Diagram Booklet. It shows triangle A and triangle B on a grid.' Diagram enlarged. Axis labels moved to the top of the vertical axis and to the right of the horizontal axis. Shapes labelled 'triangle A' and 'triangle B'. Cut out shape provided. Wording added 'A cut out shape may be available if you wish to use it.'	Standard mark scheme
22	(c)	Letter 'f' changed to 'p'. Letter 'g' changed to 'q'.	Standard mark scheme but note change of letter
28		Wording added 'Look at the diagram for Question 28 in the Diagram Booklet. You may be provided with a model. They show'. Wording removed 'The diagram shows'. Diagram enlarged. Radius and height labels moved to the left. Dashed lines made longer and thicker.	Standard mark scheme
29		Wording added 'Look at the diagram for Question 29 in the Diagram Booklet. It shows a right-angled triangle ABC.' Diagram enlarged. Right angle made more obvious. Angle moved outside of angle arc and angle arc made smaller. Wording added 'BC = 28 cm Angle ACB = 49° Angle ABC is a right angle.	Standard mark scheme

Paper: 1MA1/3F

Question	Answer	Mark	Mark scheme	Additional guidance
30	$x = 3.5$, $y = 1.5$	M1	for a correct method to eliminate either x or y or method leading to substitution (condone one arithmetic error)	
		M1	(dep M1) for substituting found value in one of the equations **or** correct method after starting again (condone one arithmetic error)	
		A1	(dep M1) for $x = 3.5$, $y = 1.5$ oe SCB1 for $x = 3.5$, $y = 1.5$ with no supportive working	Fractions do not need to be in simplest form

QUESTION 25 – Additional information - NOT Exhaustive

Final comparable values can be truncated or rounded and just need to be accurate enough to allow a comparison

Cost per lb in $: 2 × 2.2 (= 4.4) 3.75 × 1.2(0) (= 4.5) "4.5" ÷ "4.4" (= 1.02…) and 4.9(0) ÷ 5 (= 0.98) New York **and** 1.02… **and** 0.98	**Cost per lb in £:** 2 × 2.2 (= 4.4) 4.9(0) ÷ 1.2(0) (= 4.08…) 3.75 ÷ "4.4" (= 0.85…) and "4.08…" ÷ 5 (= 0.81(6…)) New York **and** 0.85… **and** 0.81(6…)
Cost per kg in $: 5 ÷ 2.2 (= 2.27…) 3.75 × 1.2(0) (= 4.5) "4.5" ÷ 2 (= 2.25) and 4.9(0) ÷ "2.27…" (= 2.15(6)) New York **and** 2.25 **and** 2.15(6)	**Cost per kg in £:** 5 ÷ 2.2 (= 2.27…) 4.9(0) ÷ 1.2(0) (= 4.08…) 3.75 ÷ 2 (= 1.87(5)) and "4.08…" ÷ "2.27…" (= 1.79(6…)) New York **and** 1.87(5) **and** 1.79(6…)
Number of lbs per $: 2 × 2.2 (= 4.4) 3.75 × 1.2(0) (= 4.5) "4.4" ÷ "4.5" (= 0.97(7…)) and 5 ÷ 4.9(0) (= 1.02…) New York **and** 0.97(7…) **and** 1.02…	**Number of lbs per £:** 2 × 2.2 (= 4.4) 4.9(0) ÷ 1.2(0) (= 4.08…) "4.4" ÷ 3.75 (= 1.17…) and 5 ÷ "4.08…" (= 1.22…) New York **and** 1.17… **and** 1.22…
Number of kg per $: 5 ÷ 2.2 (= 2.27…) 3.75 × 1.2(0) (= 4.5) 2 ÷ "4.5" (= 0.44…) and "2.27…" ÷ 4.9(0) (= 0.46…) New York **and** 0.44… **and** 0.46…	**Number of kg per £:** 5 ÷ 2.2 (= 2.27…) 4.9(0) ÷ 1.2(0) (= 4.08…) 2 ÷ 3.75 (= 0.53…) and "2.27…" ÷ "4.08…" (= 0.55(6…)) New York **and** 0.53… **and** 0.55(6…)
Cost of 5 lb in $: 2 × 2.2 (= 4.4) 3.75 × 1.2(0) (= 4.5) "4.5" ÷ "4.4" × 5 (= 5.11…) New York **and** 5.11…	**Cost of 5 lb in £:** 2 × 2.2 (= 4.4) 4.9(0) ÷ 1.2(0) (= 4.08…) 3.75 ÷ "4.4" × 5 (= 4.26…) New York **and** 4.08… **and** 4.26…
Cost of 2 kg in $: 5 ÷ 2.2 (= 2.27…) 3.75 × 1.2(0) (= 4.5) 4.9(0) ÷ "2.27…" × 2 (= 4.31…) New York **and** 4.5 **and** 4.31…	**Cost of 2 kg in £:** 5 ÷ 2.2 (= 2.27…) 4.9(0) ÷ 1.2(0) (= 4.08…) "4.08…" ÷ "2.27…" × 2 (= 3.59…) New York **and** 3.59…

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

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Measurements of length: ±5 mm

PAPER: 1MA1_3F			
Question		**Modification**	**Mark scheme notes**
4		Wording changed: 'Five fractions are shown below.'	Standard mark scheme
7	(a)	Wording added: 'Look at the diagram for Question 7(a) in the Diagram Booklet. It shows a probability scale.' Wording removed: 'below' and 'with a cross (x)' Diagram enlarged.	Standard mark scheme
	(b)	Wording added: 'Look at the diagram for Question 7(b) in the Diagram Booklet. It shows another probability scale.' Wording removed: 'below' and 'with a cross (x)' Diagram enlarged.	Standard mark scheme
8		Wording changed: 'Look at the table for Question 8 in the Diagram Booklet. It shows a menu.'	Standard mark scheme
9		Wording added: 'Look at the diagram for Question 9 in the Diagram Booklet. It shows points A, B and C marked on a grid.' Diagram enlarged. Crosses changed to dots. Open headed arrows. Vertical axis cropped at 4 and horizontal axis cropped at -4. Braille: Vertical axis cropped at 4 and -4 and horizontal axis cropped at -4.	
	(b)	Wording removed: 'with a cross (x)' Braille: Wording removed 'cross (x)' and replaced with 'square bumpon' Wording added: 'Square Bumpons are provided if you wish to use them.'	Standard mark scheme
	(c)	Wording removed: 'with a cross (x)' Braille: Wording removed 'cross (x)' and replaced with 'round bumpon' Wording added: 'Round Bumpons are provided if you wish to use them.'	Standard mark scheme
12	(b)	Wording changed: 'The first four terms of a different sequence are shown below.'	Standard mark scheme

13		Wording changed: 'Look at the diagram for Question 13 in the Diagram Booklet. It shows quadrilateral ABCD.' Wording added: 'Angle ECF = 120° Angle ADC = 45° Angle BAD is a right angle Angle ABC is marked x' Diagram enlarged. Angles moved outside of angle arcs and angle arcs made smaller.	Standard mark scheme
14		Wording added: 'Look at the diagram for Question 14 in the Diagram Booklet.' North lines extended to measure 9cm. Open headed arrows.	
	(a)	Bearing at C made to be 115°	B1 for answer in the range 110 to 120
	(b)	Length of CD changed to 15 cm	M1 for length of *CD* measured in the range 14.5 to 15.5 **or** for 4 × [length] where [length] is their measurement clearly identified as *CD* A1 for answer in the range 58 to 62
17		Wording added: 'Look at the diagram for Question 17 in the Diagram Booklet. It shows an incomplete frequency tree.' Wording added: 'in the Diagram Booklet' Braille: Wording added 'By writing the missing values labelled (i) to (vi).' Diagram enlarged.	Standard mark scheme
19		Wording added: 'Look at the table for Question 19 in the Diagram Booklet.' Wording added: 'in the Diagram Booklet'	Standard mark scheme
21b		Letter 'e' changed to 'p'.	B1 for p^6

22		Wording added: 'Look at the diagram for Question 22 in the Diagram Booklet. It shows a grid.' Wording added 'below'. Wording added: 'on the grid in the Diagram Booklet' Values in the table changed: 12 changed to 15, 8 changed to 5 Braille: 12 changed to 15, 8 changed to 5 and final value removed. Diagram enlarged. Open headed arrows. Braille: Horizontal axis cropped at 40.	Standard mark scheme but note change of values (heights at 15, 25, 10, 5, 5) Braille: heights at 15, 25, 10, 5
28		Wording changed: 'Look at the diagram for Question 28 in the Diagram Booklet. It shows straight line ABC on a set of axes.' Diagram enlarged. Open headed arrows. Crosses changed to dots.	Standard mark scheme
29		Wording changed: 'Look at the diagram for Question 29 in the Diagram Booklet. It shows…' Wording added: 'Angle DAB and angle ADC are right angles.' Diagram enlarged.	Standard mark scheme

Question 30

There were many who failed to attempt this question. There was unfamiliarity about adjusting the equations to give the same coefficient of x or y, evidenced when students started to manipulate just one of the equations, or tried a trial and improvement approach. Of those who made a good start, it was not uncommon to find them making an arithmetic error or dropping a minus sign. If this was the only error they could then go on to the next step and potentially gain two of the three marks. For the second stage in their calculation, there were as many who started again with elimination as there were who substituted back in, though substitution was done with greater success.

Summary

Based on their performance on this paper, students should:

- ensure they transcribe figures accurately both within their working and when copying figures from a calculator
- avoid truncating or rounding values until the final answer
- ensure that they know how to use their calculator
- ensure that figures are written clearly, for example, avoid any possible confusion when writing 1s and 7s, when writing 4s and 9s, and even when writing 0s and 6s
- include working out to support answers
- practise questions on topics such as algebraic manipulation and derivation, and application of ratios, scaling and rates
- practise answering response type questions where a written explanation is required

Question 28

There were very few correct answers in part (a). There seemed little evidence of an understanding that the solutions could be read from the graph. A significant number attempted an algebraic solution, but their algebraic abilities were insufficient for such a task.

In part (b) there were a few who got full marks but for those who knew to read from the intercepts often included 2 with 0.6 and 3.4. Some spoilt their answers by writing the two values as coordinates. Other errors included those who attempted to substitute values into the equation, then plot the points on the graph, using algebraic solving/factorising methods or stating the y value at the minimum point.

Question 28

Student's responses to this last question were very mixed, some not attempting it at all. However, a good number of students gained full marks and others two marks. The last mark was often lost where the students failed to solve an equation correctly giving the value of y as

2.75. It was pleasing to note that many students used the correct method but were, unfortunately, let down by careless arithmetic.

Summary

Based on their performance on this paper, students should:

- read carefully questions
- practice questions involving negative numbers and using their calculator to work with these
- give succinct explanations when a written answer is required
- use a calculator rather than relying on paper methods, particularly when working with percentages

Question 28

Very few realised that the solution of the simultaneous equations was determined by the point of intersection of the two lines. Many spent far too much time trying to solve the simultaneous equations algebraically usually without any success.

Question 30

This final question appeared to be challenging for a great number of students. Of those students who tried to create a multiple of one or both equations and identified the need to subtract the equations to eliminate a variable, most struggled with the negative numbers or forgot to multiply all parts of the equation. A negative sign was frequently lost in the working and calculating with negative values caused a large number of arithmetic errors. When students successfully showed a correct method and were awarded the first mark, the majority often went on to substitute successfully to earn the second method mark. It was rare to see a fully correct response. Some students used checks of their answers, with many then able to correct any earlier arithmetic errors. When students gained no credit at all, it was often due to either trying to combine the initial equations without first altering either equation or attempting to use a trial and improvement method which scored no marks unless correct values for x and y were found.

Summary

Based on their performance on this paper, students should:

- ensure they have access to a suitable calculator and have a good working knowledge of how to use it
- read questions carefully, including after reaching a final answer to check whether the magnitude is sensible, units are appropriate, and the level of accuracy required is shown
- practice questions involving proportion and manipulating algebraic expressions
- be able to recall formulae and angle facts to solve problems and support working shown.

Question 30

The most common fully correct method involved either multiplying the top equation by 3 and subtracting the two equations, or multiplying the bottom equation by 7 and adding the two equations. This step was the most challenging, and responses that completed it correctly generally went on to substitute the found value into one of the original equations and solve accurately, gaining 3 marks.

Responses that gained 0 marks often did not make a correct start, typically attempting to work with the equations as given without applying multiplication, or using trial and improvement methods, which were rarely successful. In some cases, multiplication was carried out correctly, but the next step was not executed accurately, or the wrong operation was chosen to eliminate a variable.

Where correct values of $x = 3.5$ and $y = 1.5$ were given without supporting working, either absent or incorrect, Special Case B1 was awarded.

Summary

Based on the performance on this paper, learners/centres should:

- note the definition of a C (communication) mark, it is awarded for a fully correct statement with no contradiction or ambiguity; a correct answer/statement given with an incorrect statement will be awarded C0
- ensure a decision is made in questions that require one
- note that for credit to be given for geometric reasons on angle questions, learners must give the whole underlined word in the mark scheme and abbreviations will not be accepted, e.g. ‘quad’ is not acceptable for ‘quadrilateral’. Reasons should also be learned
- encourage learners to show confidence in their original method and not abandon it for an incorrect method (e.g. when finding the mean from a frequency table Q19b)
- always show each step of their method
- practise finding the value of a digit in a number
- practise finding a bearing by measuring with a protractor and measuring a line accurately using a ruler
- ensure method is shown when calculating percentages e.g. not just writing 10% = ...
- practise finding percentage profit once the value of the profit has been found
- practise finding the median and mean from a frequency table
- practice expanding and simplifying double brackets
- practise changing the subject of an equation
- practise using unitary processes to compare values in best value problems
- not truncate or round values part way through a process
- practise finding the limits for error intervals
- practise converting times in hours and minutes into hours only
- practise problems involving area and Pythagoras’ Theorem
- practise solving linear simultaneous equations