Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
1	700	B1		Accept 7 hundreds
2	16	B1	cao	
3	Any two correct 1, 2, 4, 8, 16	B1	two correct and no incorrect	Allow more than two factors but all must be correct
4	−7, −3, 0, 4, 6	B1	accept in reverse order eg 6, 4, 0, −3, −7	
5	1.5	B1	oe eg $\frac{3}{2}$, $1\frac{1}{2}$	
6 (a)	5	B1	cao	
(b)	17	B1	cao	
(c)	8	B1	cao	
7 (a)	Trapezium	B1	cao	
(b)	Drawn	B1	for a right-angled triangle drawn	Allow 88 – 92° for the right angle

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
8 (a)	49.9(0)	B1	for 49.9(0)	
	30	B1	for 30	
	417.31	B1	for 417.31, ft allow 367.41 + [their 49.9(0)] for this mark	To award B1ft, the total for tin of paint must not be blank or 0
(b)	771.45	M1	for a correct first step, eg 892.48 + 4.47 (= 896.95) **or** 892.48 + 240 (= 1132.48) **or** 892.48 – 365.5(0) (= 526.98) **or** 4.47 + 240 (= 244.47)	May be seen embedded in other calculations eg 4.47 + 240 – 365.5(0)
		M1	for a complete method, eg 892.48 + 4.47 + 240 – 365.5(0)	
		A1	cao	
9	118	P1	for a correct first step, eg 200 × 2 ÷ 5 (= 80) **or** 200 × 3 ÷ 5 (= 120) **or** $1-\frac{2}{5}\left(=\frac{3}{5}\right)$ oe eg 100 – 40 (= 60(%))	
		P1	for a process to find the number of child vegetarians or number of child non-vegetarians, eg "80" × 0.35 (= 28) **or** "80" × (1 – 0.35) (= 52)	
		P1	for a process to find the number of adult vegetarians or number of adult non-vegetarians, eg (200 – "80") × 0.45 (= 54) **or** (200 – "80") × (1 – 0.45) (= 66)	
		P1	for a complete process to find the total number of non-vegetarians, eg 200 – "28" – "54" **or** ("80" – "28") + (200 – "80" – "54") oe eg "52" + ("120" – "54") **or** "80" × (1 – 0.35) + (200 – "80") × (1 – 0.45)	
		A1	cao	Answer of $\frac{118}{200}$ is P4A0

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
10 (a)	19	B1	cao	
(b)(i)	08 11	P1	for a correct first step, eg 09 00 – 8 (= 08 52) **or** for recognising which train he needs to get eg 08 17 or 08 45	
		P1	for a complete process to find the latest time he can leave his house, eg 08 17 – 6	
		A1	allow 8:11(am) Award SCB2 for an answer of 08 08 or 08 09 if P0 or P1 scored	
(b)(ii)	No effect	C1	ft, for 'no effect' oe eg 'the next train would make it too late to the meeting', allow 'he can leave later' oe if an earlier train was selected in (i)	Reason not required but if a reason is given and it contradicts the answer, award 0 marks

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
11 (a)	16	B1	cao	
(b)	48	M1	for taking a suitable reading from the graph that could be used to convert, eg 25 km = 15.5 miles **or** 17 miles = 27.2 km	Allow a tolerance of one small square for the reading eg 10 km = 6 – 6.5 miles 20 km = 12.25 – 12.75 miles 25 km = 15.25 – 15.75 miles 30 km = 18.5 – 19 miles for miles to km allow 1 mile = 1.6 km 17 miles = 27 – 28 km
		M1	ft, for a complete method, eg "15.5" × 2 + 17 **or (**"27.2" + 50) ÷ 1.6	For ft, allow use of their stated conversions but they must be conversions that could have come from graph
		A1	for an answer in the range 47 – 49.5	
12	$6x + 7y$	M1	for $6x$ **or** $7y$ **or** a linear expression in the form $ax + by$ where $a, b > 0$	
		A1	for $6x + 7y$ oe	$T = 6x + 7y$ oe scores M1A0

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13	300	B1	(indep) for process to convert to common units, eg 3×100 (= 300) or 1×100 (= 100) or 1.5×100 (= 150) or $20 \div 100$ (= 0.2) or $10 \div 100$ (= 0.1) or $75 \div 100$ (= 0.75) **or** "4.5" $\times 100^3$ (= 4 500 000) or "15 000" $\div 100^3$ (= 0.015)	This mark can be awarded at any stage One correct conversion for their process is enough for the award of this mark Working may be seen on the diagram
		P1	for finding the volume of either shape, eg $3 \times 1 \times 1.5$ (= 4.5) or [300] × [100] × [150] (= 4 500 000) **or** $20 \times 10 \times 75$ (= 15 000) or [0.2] × [0.1] × [0.75] (= 0.015) **OR** for start of the process to find the number of boxes using one dimension, eg [300] ÷ 20 (= 15) or [100] ÷ 10 (= 10) or [150] ÷ 75 (= 2) or $3 \div [0.2]$ (= 15) or $1 \div [0.1]$ (= 10) or $1.5 \div [0.75]$ (= 2)	[300] = 3 or 30 or "300" or 3000 [100] = 1 or 10 or "100" or 1000 [150] = 1.5 or 15 or "150" or 1500 [0.2] = 20 or 2 or "0.2" or 0.02 [0.1] = 10 or 1 or "0.1" or 0.01 [0.75] = 75 or 7.5 "0.75" or 0.075 May be implied by correctly dividing the areas of the corresponding faces eg $\frac{[300]\times[100]}{20\times10}$
		P1	(dep on P1) for a complete process with or without unit conversion eg "4 500 000" ÷ "15 000" or "4.5" ÷ "0.015" **or** "15" × "10" × "2"	Condone an incorrect attempt to convert volume before division
		A1	cao	

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
14	324	P1	for a process to work out daily pay on a weekday, eg 8×6 (= 48) **or** a process to work out the number of hours of pay for weekdays, eg 6×5 (= 30) **or** the number of hours of pay for Saturday and Sunday, eg $(4 + 3) \times 1.5$ (= 10.5) **or** a process to work out rate of pay for Saturday or Sunday, eg 8×1.5 (= 12)	
		P1	for a process to work out the total pay from Monday to Friday, eg "48" × 5 (= 240) **or** "30" × 8 (= 240) **or** for a process to work out the total pay from Saturday and Sunday, eg "10.5" × 8 (= 84) **or** "12" × (4 + 3) (= 84) **or** a process to work out the total number of hours of pay, eg "30" + "10.5" (= 40.5)	
		P1	for a complete process, eg "240" + "84" **or** "40.5" × 8	
		A1	cao	

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15 (a)	9.9	M1	for starting process by multiplying ages by frequencies, with at least 3 correct, eg 8 × 6, 9 × 7, 10 × 15, 11 × 11, 12 × 2 **or** at least 3 of 48, 63, 150, 121, 24	May be seen next to table. 406 implies this mark
		M1	(dep on M1) for $\sum fx \div \sum f$, eg 406 ÷ 41 **or** 406 ÷ (6 + 7 + 15 + 11 + 2) **or** (8 × 6 + 9 × 7 + 10 × 15 + 11 × 11 + 12 × 2) ÷ 41	$\sum fx$ must come from 5 products
		A1	Answer in the range 9.9 to 9.91	If an answer is given in the range in working and then rounded incorrectly award full marks.
(b)	No, with explanation	C1	No, with explanation, **Acceptable examples** No as the mode/modal age is 10 No it should be 10 (not 15) No because 15 is the number of children that are age 10 (not age 15) No because there are no 15 year olds No because the frequency tells us the number of children for that age No he needs to give the age of the highest frequency **Not acceptable examples** No he is not, the modal is the one that occurs the most Yes / Rohan is correct .... No, the mode is 11	

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
16 (a)	$2 \times 3^2 \times 7$	M1	for a complete factor tree with no more than one arithmetic error **or** 2, 3, 3, 7	Condone the inclusion of 1 for this mark
		A1	accept 2 × 3 × 3 × 7	
(b)	42	M1	for a complete factor tree for 210 (or 126 if not credited in part (a)) with no more than one arithmetic error	Condone the inclusion of 1 for this mark
			or for listing factors of 126 or 210, at least 4 correct for either (with no more than 1 incorrect in either list), could be in factor pairs	1, 2, 3, 6, 7, 9, 14, 18, 21, 42, 63, 126 1, 2, 3, 5, 6, 7, 10, 14, 15, 21, 30, 35, 42, 70, 105, 210
			or for the prime factors of 210 (2, 3, 5, 7) (or 126 if not credited in part (a))	Prime factors may be seen in a diagram eg a Venn diagram
		A1	accept 2 × 3 × 7 SCB1 for answer of 2 or 3 or 6 or 7 or 14 or 21 if M0 scored	
17	Points plotted at (130, 12) (150, 28) (170, 30) (190, 22) (210, 8) and joined with line segments	B2	for correct plotting of 5 points and joining with line segments	Ignore any histogram drawn Ignore any part of the frequency polygon outside of the range of the first and last point plotted.
		(B1	for points plotted correctly at midpoints	
			or for a frequency polygon with one point incorrect	
			or for a frequency polygon with first and last point joined directly	
			or for joining the points with line segments at the correct heights consistent within intervals (including end points))	for example, at 120, 140, 160, 180, 200 or at 140, 160, 180, 200, 220

Paper: 1MA1/3F					
Question		**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
18	(a)	340 200	B1	cao	
	(b)	8.026×10^{-1}	B1	cao	
19		Drawn	B2	for a correct construction with all relevant arcs drawn	
			(B1	for all relevant arcs drawn **or** for a bisector within guidelines but with no or insufficient arcs)	
20	(a)	(0.3) 0.7 0.3 0.7 0.3 0.7	B2	all probabilities correctly placed	Accept equivalent fractions or percentages for probabilities
			(B1	for 0.7 correctly placed for Game 1)	
	(b)	0.49	M1	for a correct method, ft their tree diagram eg 0.7 × 0.7 only	ft their diagram provided probabilities are less than 1
			A1	oe, ft their tree diagram	An answer of $\frac{0.49}{1}$ scores M1A0 unless 0.49 seen

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
21	45.6	P1	for a process to start to work with the ratio, eg 240 ÷ (3 + 5) (= 30) **or** pens = 3*n* and pencils = 5*n* where *n* is a positive integer	Can work in £ or pence but must be consistent, 90 or 150 imply P1 This mark can be awarded at any stage
		P1	for a complete process to find the number of pens and pencils, eg "30" × 3 (= 90) **and** "30" × 5 (= 150)	
			OR for process to find one cost or amount to sell for one item eg [pens] × 9 (= 810) **or** [pens] × 11 (= 990) **or** [pencils] × 6 (= 900) **or** [pencils] × 10 (= 1500)	[pens] could be "30" × 3 or their number of pens [pencils] could be "30" × 5 or their number of pencils
			OR for process to find the profit for one pen or one pencil eg 11 – 9 (= 2) or 10 – 6 (= 4)	[pens] , [pencils] ≠ 1
		P1	for a process to find the total cost to buy or the total amount to sell for both, eg [pens] × 9 + [pencils] × 6 (= 1710) **or** [pens] × 11 + [pencils] × 10 (= 2490)	180 or 600 or 780 implies P3 [pens] could be "30" × 3 or their number of pens
			OR process to find the profit for one item eg [pens] × 11 – [pens] × 9 (= 180) or [pens] × (11 – 9) (= 180) **or** [pencils] × 10 – [pencils] × 6 (= 600) or [pencils] × (10 – 6) (= 600)	[pencils] could be "30" × 5 or their number of pencils [pens] , [pencils] ≠ 1
		P1	for a complete process to find the profit as a percentage or a decimal, eg $\frac{[2490]-[1710]}{[1710]}\times 100$ **or** $\frac{[2490]-[1710]}{[1710]}(=0.456...)$ **or** for a process to find the amount to sell as a percentage of the cost eg $\frac{[2490]}{[1710]}\times 100$ $(=145.6...)$	[2490] is their amount to sell for both pens and pencils [1710] is their cost of pens and pencils [2490] – [1710] may be [180] + [600]
		A1	answer in the range 45.6 to 45.62	If an answer is given in the range in working and then rounded incorrectly award full marks. A correct answer with no supportive working gets 0 marks

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
22	Comparison	B1	for correctly identifying the median of (School) A as 57	
		C1	(ft, dep on value for the median being stated) for making a correct comparison of median eg 'the median of (School) A is higher than the median of (School) B'	If median for school B is stated in the comparison it must be correct
		B1	for correctly identifying the range of (School) A as 49	
		C1	(ft, dep on value for the range being stated) for making a correct comparison of range eg 'the range of (School) A is higher than the range of (School) B'	If range for school B is stated in the comparison it must be correct
23	10.2 and 10.3	B1	for 10.2 in the correct place	
		B1	for 10.3 in the correct place	Accept $10.2\dot{9}$ or 10.299(99...)
24	14.3	M1	for a correct statement for AB using trigonometry, eg $\tan 62 = \frac{AB}{7.6}$ **or** $(AB =) 7.6 \times \tan 62$	
		A1	answer in the range 14.28 to 14.3	If an answer is given in the range in working and then rounded incorrectly award full marks

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
25 (a)	$14x^5y^6$	B2	cao	
		(B1	for correct simplification of two terms ax^5y^6 **or** $14x^by^6$ **or** $14x^5y^c$ where $a \neq 14$, $b \neq 5$, $c \neq 6$)	Where a, x^b, y^c can be made up of two products Condone inclusion of multiplication signs for B1
(b)	m^{-6}	B1	for m^{-6} or $\frac{1}{m^6}$	
26	247.4(0)	M1	for a method to find the value of the investment or interest after 1 year, eg 4500×1.018 (= 4581) **or** 4500×0.018 (= 81)	
		M1	for a method to find the value of the investment after 3 years, eg 4500×1.018^3 (= 4747.4...) **or** "4581" × 1.018 (= 4663.45...) **and** "4663.45..." × 1.018 (= 4747.4... or 4747.39...)	May be seen in more than one calculation Award of this mark implies the first M1 Sight of 83.94... implies M2
		A1	accept 247.39 SCB1 for 243 or 4743 if M0 scored	

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
27	$y = -2x + 3$	M1	for a correct method to find the gradient of the line, eg $\frac{-1-3}{2-0}(=-2)$	
			or identifies 3 as the intercept in words or in a partial linear equation eg $y = mx + 3$ oe eg $y = 1.5x + 3$	Just circling 3 is insufficient
			or for $y = [-2]x + c$	[−2] can be any numerical value, c must be seen as a letter or a number
			or for $y - b = [-2](x - a)$ where (a, b) is a correct coordinate	[−2] can be any numerical value
		M1	for $y = -2x$ $(+ c)$	Award of this mark implies the first M1
			or for $y =$ "−2"$x + 3$, $m \neq 0$	
			or for (L =) $-2x + 3$	
			or $y - y_1 = -2(x - x_1)$	
			or for $y - b =$ "-2"$(x - a)$ where (a, b) is a correct coordinate	
		A1	for $y = -2x + 3$ oe	Any correct equation gets 3 marks

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

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_3F			
Question		**Modification**	**Mark scheme notes**
4		Wording changed: 'Write the following five numbers in order.'	Standard mark scheme
6	(a)	Letter 'x' changed to 'p'.	Standard mark scheme
7	(a)	Wording changed: 'Look at the diagram for Question 7(a) in the Diagram Booklet. It shows a quadrilateral on a grid.' Diagram enlarged. Shading changed.	Standard mark scheme
	(b)	Wording added: 'Look at the diagram for Question 7(b) in the Diagram Booklet. It shows a blank grid.' Wording removed: 'below' For Braille: sentence added 'Bumpons and drawing film are provided if you wish to use them.' Diagram enlarged.	Standard mark scheme
8	(a)	Wording added: 'Look at the table for Question 8(a) in the Diagram Booklet. It shows an incomplete bill.' Wording changed: 'Her bill is shown in the Diagram Booklet.' For MLP: wording added 'There are three spaces to fill.' For Braille: wording changed 'Complete the missing information labelled (i) to (iii) in the bill.' Table enlarged.	Standard mark scheme
10		Wording changed: 'Look at the table for Question 10 in the Diagram Booklet. It shows part of a train timetable between Horwich and Manchester.' Table enlarged. Bolton row removed from the table. Last column removed from the table.	Standard mark scheme

PAPER: 1MA1_3F			
Question		**Modification**	**Mark scheme notes**
11		Wording changed: 'Look at the diagram for Question 11 in the Diagram Booklet. It shows a graph which you can use to change between miles and kilometres.' Diagram enlarged. Graph changed to go from 0 to 9 on the horizontal axis and from 0 to 6 on the vertical axis. (a) Value '10' changed to '5'. (b) Value '50' changed to '12'. 'Staithes' changed to 'Filey'.	(a) B1 for 8 cao (b) M1 for taking a suitable reading from the graph that could be used to convert, eg 4km = 2.5miles Allow the following ranges for the reading eg 1km = 0.5 – 0.75miles 2km = 1 – 1.5 miles 3km = 1.625 – 2.125 miles 4km = 2.25 – 2.75 miles 6km = 3.5 – 4 miles for miles to km allow 1 mile = 1.6 km M1 for a complete process, eg "2.5" × 3 + 17 **or (**17 × "1.6" + 12) ÷ "1.6" A1 for answer in range 23 to 26

PAPER: 1MA1_3F			
Question		**Modification**	**Mark scheme notes**
13		Wording changed: 'Look at diagrams 1-6 for Question 13 in the Diagram Booklet. You may be provided with two models. They are NOT accurate. The models show a crate and a box. Diagram 1 shows a 3D view of the crate. Diagram 2 shows the front of the crate. Diagram 3 shows the side of the crate. Diagram 4 shows a 3D view of the box. Diagram 5 shows the front of the box. Diagram 6 shows the side of the box.' m changed to metres Diagrams enlarged. 2D views added. Models provided.	Standard mark scheme
14		Wording added: 'Look at the table for Question 14 in the Diagram Booklet.' Wording added: 'in the Diagram Booklet' Table turned vertically and enlarged.	Standard mark scheme
15		Wording changed: 'Look at the table for Question 15 in the Diagram Booklet. It …' Table enlarged.	Standard mark scheme
17		Wording added: 'Look at the diagram for Question 17 in the Diagram Booklet. It shows a grid.' Wording added: 'below' Value '100' changed to '90'. Table enlarged and left aligned. Frequency values in the table changed from 12, 28, 30, 22, 8 to 10, 25, 30, 20, 5 Wording changed from 'below' to 'in the Diagram Booklet'. For Braille: sentence added 'Bumpons and drawing film are provided if you wish to use them.' Diagram enlarged. Open headed arrows.	Standard mark scheme but points plotted at heights 10, 25, 30, 20, 5

PAPER: 1MA1_3F			
Question		**Modification**	**Mark scheme notes**
19		Wording added: 'Look at the diagram for Question 19 in the Diagram Booklet. It shows angle ABC' Diagram enlarged. Diagram rotated so that BC is horizontal. For Braille: sentence added 'Drawing film is provided if you wish to use it.'	Standard mark scheme
20		Wording added: 'Look at the diagram for Question 20 in the Diagram Booklet. It shows an incomplete probability tree diagram.' For MLP: wording added 'in the Diagram Booklet. There are five spaces to fill.' For Braille: wording changed 'Complete the probability tree diagram by writing the missing values labelled (i) to (v).' Diagram enlarged.	Standard mark scheme
21		p changed to pence	Standard mark scheme
22		Wording changed: 'Look at the diagram for Question 22 in the Diagram Booklet. It is a stem and leaf diagram showing …' Diagram enlarged. Horizontal line added at the bottom of the diagram. Key moved above and left of the diagram.	Standard mark scheme
24		Wording changed: 'Look at the diagram for Question 24 in the Diagram Booklet. It shows a right-angled triangle ABC BC = 7.6 cm Angle ACB = 62° Angle ABC is a right angle.' Diagram enlarged. Right angle made more obvious. Angle moved outside of the angle arc and angle arc made smaller.	Standard mark scheme
27		Wording changed: 'Look at the diagram for Question 27 in the Diagram Booklet. It shows line L drawn on a grid.' Diagram enlarged. Open headed arrows.	Standard mark scheme