Paper: 1MA1/1F					
Question		**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
1		0.25	B1	cao	
2		20	B1	cao	
3		150	B1	cao	
4		27	B1	cao	
5		645	B1	cao	
6		20	P1 P1 A1 SCB1	for 30 + 45 × 10 (= 480) or $50 \times 10 - 45 \times 10 \ (= 50)$ or $50 \times 10 - 30 \ (= 470)$ for 50 × 10 – "480" cao for answer 250 or -250 if P0 scored.	 P1P1 for $500 - 450 - 30$ may be seen in stages
7	(a)	9.5	B1	for answer in the range 9.3 to 9.7	Accept answer on the diagram
	(b)	acute	C1	for acute	Accept interior angle Do not accept co-interior angle
	(c)	32	B1	for answer in the range 30 to 34	Accept answer on the diagram
8	(a)	(3, 1)	B1	cao	
	(b)	*B* at (3, – 4)	B1	cao	Accept a cross without label as long as unambiguous. Accept letter B or dot in place of cross.
	(c)	(0, 2)	B1	cao	

Paper: 1MA1/1F					
Question		**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
9	(a)	bar at 11 for cricket	M1	for reading from graph of 12 **or** 17	
			M1	(dep) for 40 – ([12]+[17]) (=11)	Where [12] and [17] are their attempt at reading from the graph. May be implied by bar of height 40 – ([12]+[17])
			C1	for bar drawn at 11 for cricket	Condone bar of different width to those given or freehand bar. Shading not required. Bar of height 11 drawn implies M1M1C1
	(b)	$\frac{3}{10}$	M1	for $\frac{12}{40}$ or $\frac{6}{20}$	Accept other equivalent fractions. Do not accept equivalent decimals or percentages
			A1	cao	
	(c)	$\frac{5}{9}$	B1	for $\frac{5}{9}$ or equivalent fraction	
	(d)	1.25 : 1	B1	for 1.25 : 1 or $\frac{5}{4}$: 1 or $1\frac{1}{4}$: 1	Accept $n = 1.25$ Do not accept 1.25 alone or n : 1.25
10	(a)	reflection	B2 (B1	for a fully correct reflection for a correct reflection in any single mirror line **or** for at least two correct reflected lines)	
	(b)	$y = 1$	B1	$y = 1$ oe	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
11 (a)	110 70 100 280 90 80 50 220 200 150 150 **500**	C3 (C2 (C1	for a fully correct table for 6 or 7 or 8 or 9 or 10 correct entries) for 3 or 4 or 5 correct entries)	
(b)	$\frac{100}{500}$	M1 A1	for $\frac{a}{500}$ where $0 < a < 500$ **or** for $\frac{100}{b}$ where $100 < b \leq 500$ **or** ft their table for $\frac{100}{500}$ oe or ft their table	100:500 scores M1A0 For M1 ft their table this is for $\frac{\textit{their}\text{ value of adult action from table}}{c}$ where *their* value of action adult $< c \leq 500$ For A1 ft their table is for $\frac{\textit{their}\text{ value of adult action from table}}{500}$
12	explanation	C1	for explanation **Acceptable examples** he should have multiplied first multiplication should be done before subtraction he should have done 3×4 first he didn't use BIDMAS/BODMAS/PEMDAS $5 - 12 = -7$ **Not acceptable examples** he was correct the answer is – 7 Olly's method gives the wrong answer BIDMAS/BODMAS/PEMDAS he should multiply first so $3 \times 4 = 12$ then $12 - 5 = 7$ he should have done $3 \times 4 = 12$ then $12 - 5 = 7$ he should have done 2×4 first	

Paper: 1MA1/1F					
Question		**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13	(a)	8	M1 A1	for 11 + 5 (= 16) cao	
	(b)	– 3 or × 0.7	P1	for 28 ÷ 4 (= 7) **or** 10 – 3 (= 7) **or** 10 × 0.7 (= 7)	7 may be seen next to function machine or embedded within a calculation
			A1	cao	Accept $+ -3$ or $\times \frac{7}{10}$
14	(a)	5	P1	for a start of a method to find the height, eg 10 × 4 (= 40) **or** 200 ÷ 10 (= 20) **or** 200 ÷ 4 (= 50) or for forming a correct equation $10 \times 4 \times h = 200$	
			A1	cao	
	(b)	126	M1	for a start to find the area of at least one face, eg 6 × 3 (= 18) **or** 5 × 3 (= 15) **or** 6 × 5 (= 30)	Do not award first M if multiplied by a third length (ie volume calculation)
			M1	for combining the area of at least three of the correct faces eg "18" + "15" + "30" (= 63) **or** 2 × "18" + "15"	May be part of a larger addition including incorrect areas. Do not award if more than 6 areas added.
			A1	cao	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15 (a)	$3(2a + 5)$	B1		
(b)	2	M1	for correct expansion of brackets, ie $12y + 4$ **or** dividing throughout by 4 as a first step to solve equation, eg $3y + 1 = 28 \div 4$	For M marks step must be carried out not just intention shown. For example, if you see $4(3y + 1) = 28$ $\div 4 \quad \div 4$ Award M1 for: $3y + 1 = k$ with $k \neq 28$ or 112
		M1	for isolating terms in y, eg $12y = 28 - 4$ **or** $3y = 7 - 1$	ft their equation of the form $ay \pm b = c$ For example, if you see $12y + 4 = 28$ $-4 \quad -4$ Award M1 for: $12y = k$ with $k \neq 28$ or 32
		A1	cao	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
16	15.5(0)	P1	for a correct process to find the cost of some teas only **or** some coffees only eg (2 teas =) 8.50 – 4.50 (= 4) **or** (2 coffees =) $3 \times 4.50 - 8.50$ (= 5)	Use of simultaneous equations – marks awarded at the stages shown in the scheme.
		P1	for a process to find the cost of one tea or four teas, eg (1 tea =) "4" ÷ 2 (= 2) **or** (4 teas =) "4" × 2 (= 8)	
		P1	for a process to find cost of one coffee or three coffees, eg (1 coffee =) 4.50 – "2" (= 2.50) **or** 8.50 – "2" × 3 (= 2.50) **or** $1.5 \times$ "5" (= 7.50)	
		P1	for a complete process, eg "2" × 4 + "2.50" × 3	
		A1	cao	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
17	No, with correct figures	P1	for start to process to find amount of each paint colour needed eg $24 \div (4 + 3 + 1)$ (= 3) **or** $8 : 6 : 2$ **or** for start to process to simplify 12 : 7 : 5 to a ratio that can be compared to 4 : 3 : 1 eg $12 \div 4 (= 3)$ **or** $7 \div 3$ (= 2.3 ...) **or** $5 \div 1$ (= 5)	
		P1	for complete process to find amount of each paint colour needed eg "3" × 4 (= 12) **and** "3" × 3 (= 9) **and** "3" × 1 (= 3) **or** $12 : 9 : 3$ **or** for complete process to cancel 12 : 7 : 5 to a ratio that can be compared to 4 : 3 : 1 eg $12 : 7 : 5$ as $4 : "\frac{7}{3}" : "\frac{5}{3}"$ or $4 :$ "2.3 ..." : "1.6 ..." **or** $12 : 7 : 5$ as $"5\frac{1}{7}" : 3 : "2\frac{1}{7}"$ or "5.14 ..." : 3 : "2.14 ..." **or** $12 : 7 : 5$ as $"2\frac{2}{5}" : "1\frac{2}{5}" : 1$ or "2.4" : "1.4" : 1	
		C1	No, with correct figure(s) for comparison. eg No with $12 : 9 : 3$ No, 9 litres of yellow needed No with $4 : 2.3 \ldots : 1.6 \ldots$	No may be indicated by eg 'not enough yellow'.
18	682	M1	for a start to a method, eg. 8184 ÷ 12 (or 818.4 ÷ 1.2) that leads to 6 as the first digit **or** for a complete method with no more than one arithmetic error	A start to a repeated subtraction method or build-up method is acceptable if a correct first digit of 6 is found
		A1	for digits 682	
		A1	(ft) (dep M1) for correct placement of the decimal point into their final answer	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
19 (a)	75	P1	for process to find sum of unknown probabilities eg 1 – (0.10 + 0.30 + 0.05 + 0.25) (= 0.3) oe or for process to find number of times dice lands on 3, 4, 5 or 6 eg (0.10 + 0.30 + 0.05 + 0.25) × 500 (= 350) oe	Award mark for any two probabilities that sum to 0.3 eg in the table or probability of 2 = 0.15
		P1	for a complete process, eg ("0.3" ÷ 2) × 500 oe or (500 – "350") ÷ 2 oe	P1P1A0 for answer of 75:500 or $\frac{75}{500}$
		A1	cao	
(b)	Answer to part (a) will be greater	C1	for an explanation that the answer will be greater **Acceptable examples** It makes the answer an underestimate The number will be higher The answer will increase / will go up The number of 2's will increase It would be more than [75] **Not acceptable examples** My answer will change My answer is incorrect The calculation will change The probability will change It would make the probability of 2 go up My answer won't change	Where [75] is their answer to (a)

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
20 (a)	$2\frac{1}{3}$	M1	for a method to subtract by writing both fractions with a common denominator with at least one correct numerator, eg. $3\frac{3}{6}-1\frac{1}{6}$ **or** $\frac{3}{6}-\frac{1}{6}\left(=\frac{2}{6}\right)$ **or** $\frac{21}{6}-\frac{7}{6}\left(=\frac{14}{6}\right)$ **or** $\frac{42}{12}-\frac{14}{12}\left(=\frac{28}{12}\right)$	
		A1	for $2\frac{1}{3}$ or an equivalent mixed number	Do not ISW incorrect further work from correct equivalent mixed number
(b)	Shown	M1	for conversion to improper fractions, eg. $\frac{21}{4}$ **or** $\frac{7}{3}$ **or** $\frac{9}{4}$	
		M1	(dep) for method to divide by a fraction, eg. $\frac{21}{4}\times\frac{3}{7}$ **or** $\frac{63}{12}\div\frac{28}{12}$	
		C1	for complete work showing each stage as far as $\frac{9}{4}$ **or** $2\frac{7}{28}$	Must see an intermediate step, eg $\frac{63}{28}$ must be seen and then cancelled or correct cancelling seen before multiplication

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
21	180 – 4*e* and reason	M1	for angle *ACD* = *e* **or** for angle *ADC* + angle *BAD* = 180 **or** for angle *BAX* = 3*e* (where *X* lies on *DA* extended)	Angles must be clearly labelled on the diagram or otherwise identified
		A1	for 180 – 4*e* oe	May be unsimplified
		C1	(dep M1) for an appropriate reason relating to parallel lines from alternate angles are equal or allied angles / co-interior angles add up to 180 or for corresponding angles are equal	Underlined words need to be shown Reason needs to be linked to their method, which can be implied from correctly identified angles (stated or written on the diagram)
22 (a)	Estimated time	P1	for rounding of distance = 5 (miles) or speed = 30 (mph)	
		P1	(dep) for using time = distance / speed eg 5 ÷ 30 **or** for a complete process, eg 30 ÷ 60 (= 0.5) **and** 5 ÷ "0.5" or 30 ÷ 5 (= 6) **and** 60 ÷ "6" or $4.96 \times \frac{60}{30}$	
		A1	for a correct answer following through their correct rounded distance and/or speed	
(b)	Overestimate with reason	C1	ft from (a) for decision with correct reasoning, eg overestimate as dividing a larger number by a smaller number or overestimate as miles rounded up and speed rounded down	Ft the rounding and process from (a) Must relate to estimation and not rounding of their final answer and they must have a final answer to part (a)

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
23	55	P1	for process to find the sum of the interior angles of a pentagon, eg. 180 × (5 – 2) (= 540) oe	Can be implied by the shape correctly divided into triangle and quadrilateral or three triangles with correct angle sums marked.
		P1	for the start to a process of giving each angle in a common form, eg. $d = 3c$ **or** $e = 2c$ **or** x, $3x$, $2x$	Can be implied by division by 7 or 1, 1, 3, 2 given in a ratio eg 1 : 2 : 1: 3
		P1	for process to find the value of c, eg ([540] – 155) ÷ 7 oe or for a correct equation in one variable, eg $c + 155 + c + 3c + 2c = [540]$ oe	Where [540] is what they believe to be the angle sum of the pentagon.
		A1	cao	
24	Rate of change of volume	C1	for a correct explanation **Acceptable examples** The rate of water poured Speed of pouring water out from the tank How fast the water is being used (in the tank over time) Amount of water decreasing in the tank each second **Not acceptable examples** Negative correlation / negative gradient Amount of water decreasing in the tank in seconds As time increases the volume of water in the tank decreases It is negative, the volume of litres is going down It represents the deceleration or changing speed	Allow amount of water increasing in the tank each second

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
25	$w = \frac{y + 10}{3}$	M1 A1	for $y + 10 = 3w$ **or** $\frac{y}{3} = w - \frac{10}{3}$ for $w = \frac{y+10}{3}$ oe	Accept $w = \frac{-y-10}{-3}$ for M1A1
26	$x = 5$, $x = -3$	M1 M1 A1	for factorisation eg $(x \pm 3)(x \pm 5)$ or $(x + a)(x + b)$ where $ab = -15$ or $a + b = -2$ **or** for substitution into quadratic formula eg $\frac{--2\pm\sqrt{(-2)^2-4\times1\times-15}}{2\times1}$ oe for $(x + 3)(x - 5)$ or for $\frac{2\pm\sqrt{64}}{2}$ cao	 Condone one sign error in substitution into quadratic formula.

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

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_1F			
Question		**Modification**	**Mark scheme notes**
7		Wording changed: 'Look at the diagram for Question 7 in the Diagram Booklet. It shows an accurately drawn triangle, PQR Angle PQR is marked x' Diagram enlarged. Wording added above the diagram: Diagram IS accurately drawn Angle moved outside of angle arc and angle arc made smaller. Point R labelled. Line PQ changed to be exactly 11.5cm Angle x changed to be exactly 35°	(a) B1 for answer in the range 11 to 12 (b) Standard mark scheme (c) B1 for answer in the range 30 to 40
8		Wording added: 'Look at the diagram for Question 8 in the Diagram Booklet. It shows point A and point C on a grid.' Diagram enlarged. Crosses changed to dots. (b) Wording changed: On the grid in the Diagram Booklet, mark the point (3, – 4) Label this point B For Braille: sentence added 'Bumpons are provided if you wish to use them.'	Standard mark scheme
9		Wording added: 'Look at the diagram for Question 9(a) and 9(b) in the Diagram Booklet. It shows an incomplete bar chart.' Diagram enlarged. Vertical axis cut at 12. Tennis players value changed to 9. Football players value changed to 11. Shading changed. Additional column on the grid added.	
	(a)	Value '40' removed and replaced with '30'. Wording added: in the Diagram Booklet For Braille: sentence added 'Bumpons and drawing film are provided if you wish to use them.'	M1 for reading from graph of 9 **or** 11 M1 for 30 – ("9" + "11") C1 for bar drawn at 10 for cricket
	(b)	Value '40' removed and replaced with '30'.	M1 for $\frac{9}{30}$ A1 for $\frac{3}{10}$

PAPER: 1MA1_1F			
Question		**Modification**	**Mark scheme notes**
10		Wording added: Look at the diagram for Question 10 in the Diagram Booklet. It shows a shaded shape on a grid. Diagram enlarged. Vertical axis changed to go from –2 to 8. Mirror line changed to $y = 4$ and shape moved up three squares. Shading changed. Mirror line labelled on the left and right. Cutout shape provided. For Braille: sentence added 'Bumpons, drawing film and an accurate cutout shape are provided if you wish to use them.'	(a) Standard mark scheme but note change in position (b) B1 for $y = 4$
11		Look at the table for Question 11 in the Diagram Booklet. It shows an incomplete two-way table. Wording added: in the Diagram Booklet. There are eleven spaces to fill.	Standard mark scheme
13	(a)	Wording changed: Look at the diagram for Question 13(a) in the Diagram Booklet. It shows a number machine. Diagram enlarged. Open headed arrows.	Standard mark scheme
	(b)	Wording changed: Look at the diagram for Question 13(b) in the Diagram Booklet. It shows a different number machine. Diagram enlarged. Open headed arrows.	Standard mark scheme
14	(a)	Wording changed: Look at Diagram 1, Diagram 2 and Diagram 3 for Question 14(a) in the Diagram Booklet. You may be provided with a model. It is NOT accurate. Diagram 1 and the model show a cuboid. It has length 10 cm and width 4 cm. Diagram 2 shows the front of the cuboid. Diagram 3 shows the side of the cuboid. Model provided. Diagram enlarged. 2 new 2D views added.	Standard mark scheme
	(b)	Wording changed: Look at Diagram 1, Diagram 2 and Diagram 3 for Question 14(b) in the Diagram Booklet. You may be provided with a model. It is NOT accurate. Diagram 1 and the model show a different cuboid. It has height 3 cm, length 6 cm and width 5 cm. Diagram 2 shows the front of the cuboid. Diagram 3 shows the side of the cuboid. Model provided. Diagram enlarged. 2 new 2D views added.	Standard mark scheme

PAPER: 1MA1_1F			
Question		**Modification**	**Mark scheme notes**
15	(a)	Letter ‘a’ changed to ‘p’.	Standard mark scheme but note change of letter
19		Wording changed: Look at the table for Question 19 in the Diagram Booklet. It shows … Table turned vertically and enlarged.	Standard mark scheme
21		Wording changed: Look at the diagram for Question 21 in the Diagram Booklet. It shows parallelogram ABCD. Angle BAC is marked p. Angle ADC is marked 3p. Letter ‘e’ changed to ‘p’. Diagram enlarged. Angles moved outside of angle arcs and angle arcs made smaller.	Standard mark scheme but note change of letter
23		Wording changed: Look at the diagram for Question 23 in the Diagram Booklet. It shows a pentagon. Angles p, q, r, s and t are marked. Letters changed: ‘a’ changed to ‘p’, ‘b’ changed to ‘q’, ‘c’ changed to ‘r’, ‘d’ changed to ‘s’, ‘e’ changed to ‘t’. Diagram enlarged. Angles moved outside angle arcs and angle arcs made smaller.	Standard mark scheme but note change of letters
24		Wording changed: Look at the diagram for Question 24 in the Diagram Booklet. It is a graph showing the volume of water, V litres, in a tank at time t seconds. Diagram enlarged. Open headed arrows.	Standard mark scheme