Q	Answer	Mark	Comments
1(a)	$\frac{27}{100}$	B1	
	Additional Guidance		
	Ignore attempt to simplify after correct answer seen		

Q	Answer	Mark	Comments
1(b)	0.4	B1	oe decimal eg 0.40
	Additional Guidance		
	.4		B1

Q	Answer	Mark	Comments
1(c)	35	B1	

Q	Answer	Mark	Comments
2(a)	$5x$	B1	
	Additional Guidance		
	$5 \times x$ or $x \times 5$ or $x5$		B0

Q	Answer	Mark	Comments
2(b)	$10w$	B1	
	Additional Guidance		
	$10 \times w$ or $w \times 10$ or $w10$		B0

Q	Answer	Mark	Comments
2(c)	2	B1	
	Additional Guidance		
	$\frac{2}{1}$ or $2 \div 1$		B0

Q	Answer	Mark	Comments
2(d)	y^3	B1	
	Additional Guidance		
	$y^2 \times y$ or $y \times y^2$		B0

Q	Answer	Mark	Comments
3(a)	c	B1	

Q	Answer	Mark	Comments
3(b)	a or d	B1	accept a and d

Q	Answer	Mark	Comments
3(c)	0	B1	oe
	Additional Guidance		
	Accept none, zero, nought etc		

Q	Answer	Mark	Comments
4(a)	9.03	B1	
	Additional Guidance		
	9.03p		B1
	903p on the answer line		B1
	903 on the answer line with £ not crossed out		B0

Q	Answer	Mark	Comments
4(b)	2.56	B1	
	Additional Guidance		
	2.56p		B1
	256p on the answer line		B1
	256 on the answer line with £ not crossed out		B0

Q	Answer	Mark	Comments
5(a)	5×20 or 100 or 2×20 or 40 or $5 - 2$ or 3 or 5×4 or 20 **and** 2×4 or 8 **and** $20 - 8$ or 12	M1	oe eg $20 + 20 + 20$ eg $20 + 20 + 20 + 20 + 20$ may be by the diagram
	60	A1	
	Additional Guidance		
	Answer 60b BOD 60 bottles		M1A1
	Further work eg $60 + 30 = 90$		M1A0

Q	Answer	Mark	Comments	
5(b)	**Alternative method 1**			
	$6\frac{1}{4} \times 20$ or 125	M1	oe eg $6 \times 20 + \frac{1}{4} \times 20$ or $120 + 5$ may be by the diagram	
	their $125 \times 17.5(0)$	M1	oe	
	2187.5(0)	A1		
	Alternative method 2			
	$6\frac{1}{4} \times 17.5(0)$ or 109.375 or 109.37 or 109.38	M1	oe eg $6 \times 17.5(0) + \frac{1}{4} \times 17.5(0)$ or $105 + 4.375$	
	their 109.375×20	M1	oe	
	2187.5(0)	A1		
	Alternative method 3			
	$20 \times 17.5(0)$ or 350	M1	oe	
	their $350 \times 6\frac{1}{4}$	M1	oe eg their $350 \times 6 + \frac{1}{4} \times$ their 350 or $2100 + 87.5(0)$	
	2187.5(0)	A1		
	Additional Guidance			
	2187.50p			M1M1A1
	Alt 1 $6 \times 20 = 120$ $120 \times 17.5(0)$			M0 M1A0
	Alt 2 $6 \times 17.5(0) = 105$ 105×20			M0 M1A0

Q	Answer	Mark	Comments
6(a)	*DC* or *CD*	B1	
	Additional Guidance		
	CDE		B0
	C : D		B0

Q	Answer	Mark	Comments
6(b)	Rectangle drawn with an area of 10	B2	any orientation B1 10 seen or any polygon drawn different from the given shape with an area of 10
	Additional Guidance		
	B1 may be awarded for correct work with no shape or incorrect shape, even if this is seen amongst multiple shapes		
	Mark intention		
	10 may be seen on the diagram		
	Draws the given shape reflected or in a different orientation		B0

Q	Answer	Mark	Comments
7	**Alternative method 1: one side measured**		
	7.4 (cm) or 74 (mm) or 2.9 (inches)	B1	± 2 mm allow [2.8, 3)
	their 7.4 × 3 or their 74 × 3 or their 2.9 × 3 or [21.6, 22.8] or [216, 228] or [8.4, 9)	M1	oe their 7.4 must be [7, 8] their 74 must be [70, 80] their 2.9 must be [2.6, 3.2]
	[21.6, 22.8] cm or [216, 228] mm or [8.4, 9) inches	A1ft	ft their 7.4 or their 2.9 with B0M1 awarded
	Alternative method 2: more than one side measured		
	Each side measured as 7.4 (cm) or 74 (mm) or 2.9 (inches)	B1	± 2 mm allow [2.8, 3)
	their 7.4 + their 7.4 + their 7.4 or their 74 + their 74 + their 74 or their 2.9 + their 2.9 + their 2.9 or [21.6, 22.8] or [216, 228] or [8.4, 9)	M1	oe their 7.4 must be [7, 8] their 74 must be [70, 80] their 2.9 must be [2.6, 3.2]
	[21.6, 22.8] cm or [216, 228] mm or [8.4, 9) inches	A1ft	ft their 7.4 or their 2.9 with B0M1 awarded

Additional guidance is on next page

	Additional Guidance	
7 cont'd	In alternative method 2 the sides do not have to be equal eg 7.5, 7.5, 7.6 = 22.6 Cannot access the A mark as there are no units.	B1 M1A0ft
	eg sides measured as 7.6, 7.6, 7.7 7.6 + 7.6 + 7.7 = 22.9 cm Cannot gain the B mark as 7.7 is out of range	B0 M1 A1ft
	eg 75, 80, 80 answer 235 mm 80 is out of range for the B mark but in range for the M mark. Method mark implied by correct answer for their values	B0 M1A1ft
	Further work after the correct answer seen eg 7.4 and 22.2 ÷ 2 = 11.1 cm	B1M1A0
	Ignore subsequent rounding once correct answer is seen	
	Accept correct units seen with their answer in the working, even if missing from the answer line, provided they are not contradicted.	
	Ignore any measurement of the height for the B mark	

Q	Answer	Mark	Comments
8(a)	56 – 17 or 39	M1	
	13	A1	
	Additional Guidance		
	M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen in multiple attempts		
	Ignore any values for blue or white cubes		
	eg G B W R 17 13 13 13 With R unambiguously linked with 13 May be seen as a ratio Unless contradicted on the answer line is awarded M1A1		
	17 (+) 13 (+) 13 (+) 13 without 13 linked to red		M1A0
	13 and answer 13 out of 56		M1A1
	13 and answer $\frac{13}{56}$		M1A0
	13 and answer 56		M1A0
	Answer $\frac{13}{56}$		M1A0

Q	Answer	Mark	Comments	
8(b)	56 + 24 or 80	M1		
	0.4 × their 80 or 32	M1dep	oe eg 0.4 × 56 + 0.4 × 24 or 9.6 + 22.4	
	15	A1		
	Additional Guidance			
	M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen in multiple attempts			
	15 and answer 15 out of 24			M1M1A1
	15 and answer $\frac{15}{24}$ or $\frac{3}{8}$			M1M1A0
	Answer $\frac{15}{24}$			M1M1A0
	80 seen embedded in a fraction			M1
	Answer $\frac{3}{8}$ with no other creditworthy work			M0M0A0
	Condone 80 × 40%			M1M1
	40% of 80 is 2nd M0 unless recovered			
	Build up methods for finding 40% of 80 must be completed to be awarded the M mark eg 80 followed by 10% = 8 and 4 × 8 = 32 eg 0.1 × 80 = 6 and 4 × 6 = 24 eg 80 followed by 10% = 6 and 4 × 6 = 24			 M1M1 M1M1 M1M0

Q	Answer	Mark	Comments	
9	**Alternative method 1**			
	270 ÷ 3 or 90 or 270 × 50 or 13 500 or 270 × 0.5(0) or 135	M1	oe	
	270 ÷ 3 × 50 or 270 ÷ 3 × 0.5(0)	M1dep	oe	
	45	A1		
	Alternative method 2			
	Correctly finds units and cost for at least 30 miles	M1	eg 30 miles = 10 units and 10 units cost (£)5	
	Correct method for cost of 270 miles	M1dep		
	45	A1		
	Additional Guidance			
	45.00(p)			M1M1A1
	45.0			M1M1A0
	Accept 0.33(…) or 33.(…)% for $\frac{1}{3}$			
	Further work eg 45 ÷ 2			M1M1A0
	Embedded answer of 45 but not selected			M1M1A0

Q	Answer	Mark	Comments
10(a)	$2 \times 8.5(0)$ or 17(.00)	M1	oe
	38 – their 17 or 21	M1dep	
	their $21 \div 5$ or 4.2	M1dep	oe eg $5 \times 4.2(0)$
	4.20	A1	correct money notation SC2 5.90 SC1 5.9
	Additional Guidance		
	Special case is for using 1 metre of linen at £8.5(0)		
	Allow 4.20(p) for the A mark		
	$4.20 \div 5 = 84$p		M1M1M1 A0

Q	Answer	Mark	Comments
10(b)	14 × 0.65 or 9.1(0) or 15 × 0.65 or 9.75 or 10 ÷ 0.65 or 15.3(…) or 15.4 or (5 – 7 × 0.65) × 2 or 0.9(0)	M1	oe allow in pence
	No and 15 with M1 awarded or No and (£)9.75	A1	oe eg No and she can get 1 more with M1 awarded
	Additional Guidance		
	Yes ticked		max M1A0
	No may be implied if neither box ticked		
	0.65 × 14 = 9.1 she can buy another No ticked		M1A1
	10 ÷ 0.65 = 15.38 No ticked		M1A0
	0.65 × 14 = 9.1 she can buy more No ticked		M1A0
	She can get 15 not 14 No ticked		M0A0
	The left over change would make up another 65p so enough for another button No ticked		M0A0

Q	Answer	Mark	Comments
11(a)	All 4 points plotted correctly with a straight line joining them	B2	$\pm\frac{1}{2}$ square B1 at least two correct points plotted mark intention for straight line
	Additional Guidance		
	Ignore additional or incorrect points for B2 or B1		
	Ignore any line or curve extended outside the range		
	The correct position of the line implies correctly plotted points		

Q	Answer	Mark	Comments
11(b)	**Alternative method 1: uses the graph**		
	Vertical line from $x = 2.5$ to their straight line	M1	$\pm\frac{1}{2}$ square implied by mark at correct point on graph or on vertical axis
	their 8.5	A1ft	$\pm\frac{1}{2}$ square ft their straight line graph if at least B1 awarded in (a)
	Alternative method 2: substitutes into the equation		
	$3 \times 2.5 + 1$	M1	oe
	8.5	A1	
	Alternative method 3: uses values from the table		
	$\frac{7+10}{2}$	M1	oe eg $\frac{4+7+10+13}{4}$
	8.5	A1	
	Additional Guidance		
	Alternative method 1 – must have a line in part (a)		
	Alternative method 1 A vertical line from the x-axis does not need to be drawn if the reading from the graph is correct within tolerance for their graph		

Q	Answer	Mark	Comments
12	3 5 6 7 9	B3	B2 last digit square **and** middle digit even with three of the following constraints met: • only one square • only one even • no repeats • ascending order or 9 7 6 5 3 B1 last digit square with no other squares or middle digit even with no other evens or 3 5 6 7 9 unordered, not scoring B2

Additional Guidance	
Mark the answer line	
1 3 6 7 9 (two squares is only error)	B2
3 5 6 7 1 (order is only error)	B2
3 3 6 7 9 (repeat is only error)	B2
0 3 6 7 9 (two even numbers)	B2
3 3 2 3 9 (order wrong and repeats but middle digit is only even and/or last digit is only square)	B1
3 3 2 3 4 (order wrong and two evens but last digit is only square)	B1
1 3 4 5 7 (middle digit is only even)	B1
2 2 5 6 4 (last digit is only square)	B1
2 3 4 5 6	B0
1 3 4 8 9	B0
Must have 5 single digits	

Q	Answer	Mark	Comments
13	**Alternative method 1: find total**		
	4×10 or 40	M1	oe
	their $40 - 5 - 8 - 9$	M1	oe their 40 must be greater than 22
	18	A1	
	Alternative method 2: trial and improvement		
	One trial evaluated correctly	M1	eg trials 12, $\frac{5+8+9+12}{4} = 8.5$
	The correct trial evaluated correctly	M1dep	
	18	A1	
	Additional Guidance		
	Embedded 18 without being selected as answer		M2A0

Q	Answer	Mark	Comments
14(a)	$d + 4$ or $4 + d$	B1	

Q	Answer	Mark	Comments
14(b)	$3p$ or $3 \times p$ or $p \times 3$	B1	
	Additional Guidance		
	Condone $p3$ as this question is testing inverse operations not expression notation		B1

Q	Answer	Mark	Comments
15	$3n - 1$	B2	oe eg $2 + (3n - 3)$ B1 $3n + c$ where c can be any value
	Additional Guidance		
	Ignore LHS of formula given eg $T_n = 3n - 1$		B2
	Condone $n = 3n - 1$ or nth term $= 3n - 1$		B2
	Allow a multiplication sign eg $3 \times n - 1$ or $n \times 3 - 1$		B2
	Allow other variables eg $3x - 1$		B2
	$3n + - 1$		B1
	$3x$		B1
	$n3$ ...		B1
	$n3 - 1$		B1
	$3n$th $- 1$		B1
	$3n$th		B0
	$n3 - 1n$		B0

Q	Answer	Mark	Comments
16	segment	B1	region A
	sector	B1	region B

Q	Answer	Mark	Comments
17	$\begin{pmatrix} 5 \\ 8 \end{pmatrix}$	B1	
	Additional Guidance		
	Condone 'fraction line' between the two numbers for B1 but must have the numbers in a column		
	If signs are in front of 5 and 8 they must be +		

Q	Answer	Mark	Comments
18(a)	$\frac{1}{4}$ (red) and $\frac{3}{4}$ (blue) for Bag A	B1	oe fractions, decimals or percentages
	$\frac{3}{5}$ (white) and $\frac{2}{5}$ (green) for both sections for Bag B	B1	oe fractions, decimals or percentages
	Additional Guidance		
	Percentages must have the % symbol		

Q	Answer	Mark	Comments
18(b)	$\frac{1}{4} \times \frac{3}{5}$	M1	oe fractions, decimals or percentages correct or ft their tree diagram with both probabilities > 0 and < 1
	$\frac{3}{20}$ or 0.15 or 15%	A1ft	correct or ft their tree diagram with both probabilities > 0 and < 1
	Additional Guidance		
	Further work after correct answer seen		M1A0

Q	Answer	Mark	Comments	
19	**Alternative method 1**			
	sin chosen or used	M1		
	31 × sin 24	M1dep	accept 31 × [0.4, 0.41]	
	[12.6, 12.61]	A1	accept 13 if M2 awarded	
	Alternative method 2			
	cos (90 – 24)	M1		
	31 × cos (90 – 24)	M1dep	accept 31 × [0.4, 0.41]	
	[12.6, 12.61]	A1	accept 13 if M2 awarded	
	Additional Guidance			
	Check diagram for working			
	Allow correct use of sine rule to indicate sin 24			
	Ignore rounding or truncating after the correct answer is seen			
	sin 24 × 31			M2
	Do not accept answers from full sized or scale drawing			
	sin may be indicated by eg circling S in SOH CAH TOA			

Q	Answer	Mark	Comments
20	88(%) or 0.88	M1	oe eg $1 - 0.12$
	$2\,200\,000 \div 88$ ($\times 100$) or $25\,000$ ($\times 100$)	M1dep	oe eg $2.2 \times 10^6 \div (100 - 12)$ ($\times 100$) or $2\,200\,000 \times$ [1.136, 1.14] or $2\,500\,000$
	2.5×10^6	A1	oe standard form eg $2.500\,000 \times 10^6$ SC1 2.2×10^6 oe standard form seen SC1 any value seen converted to standard form
	Additional Guidance		
	M1 or SC1 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts		
	M1 may be seen in a trial or incorrect working eg $3\,000\,000 \times 0.88$ or 88% of $2\,200\,000$		M1
	$2\,200\,000 \div 88\%$ not recovered		M1M0
	$2\,200\,000 \times 1.12 = 2\,464\,000$ $2.464 \times 10^6 = 2.5 \times 10^6$		SC1

Q	Answer	Mark	Comments
21(a)	The number of blueberries in the tub	B1	

Q	Answer	Mark	Comments
21(b)	<table><tr><td>2</td><td>6</td><td>8</td></tr><tr><td>120</td><td>40</td><td>30</td></tr></table>	B2	B1 40 or 8 in the correct position or (k =) 120 × 2 or (k =) 240 seen
	Additional Guidance		
	(k =) 240 or (k =) 120 × 2 may be seen anywhere on the page		
	240 may be seen embedded in the formula eg $120 = \frac{240}{2}$		B1

Q	Answer	Mark	Comments
22(a)	The same number of 7s as even numbers	M1	any order may be in a list or on the spinner must be at least one 7
	5, 5, 6, 7, 7, 8	A1	any order may be in a list or on the spinner may be implied
	$\frac{2}{6}$	A1ft	oe fraction, decimal or percentage ft M1A0 with completed spinner or list of six numbers
	Additional Guidance		
	Ignore simplification or conversion attempt after correct answer seen		
	Accept 0.33(…) or 33.(…)% for $\frac{2}{6}$		
	A list/spinner with blanks and/or using other numbers may still score M1 eg 5, 5, 7, 10 or 5, 6, 7, 7, 8, 9		M1
	$\frac{2}{6}$ with no incorrect working eg 5, 6, 7, 8 on spinner with 2 blanks answer $\frac{2}{6}$ (M1A1 is implied)		M1A1A1
	5, 5, 6, 6, 7, 7 with answer $\frac{2}{6}$		M1A0A1ft
	5, 5, 5, 5, 6, 7 with answer $\frac{4}{6}$		M1A0A1ft
	5, 6, 6, 7, 7, 9 with answer $\frac{2}{6}$		M1A0A0ft
	5, 5, 5, 5, 5, 6 with answer $\frac{5}{6}$		M0A0A0ft

Q	Answer	Mark	Comments
22(b)	Valid reason	B1	eg sum of probabilities is not 1
	Additional Guidance		
	Ignore irrelevant statements alongside a correct statement eg the sum of the probabilities is not 1 and the probabilities are not percentages	B1	
	Do not ignore incorrect statements alongside a correct statement eg the sum of the probabilities is 0.11 not 1	B0	
	They add up to 1.1	B1	
	They add up to 110%	B1	
	It is 0.1 too much	B1	
	One of the probabilities is 0.1 too much	B1	
	It should be something like 0.1, 0.2, 0.3, 0.4	B1	
	B should be 0.4	B1	
	They don't add up correctly	B0	
	They add up to 0.11	B0	
	It's not a fair spinner	B0	

Q	Answer	Mark	Comments
23(a)	*C* (0, 6)	B1	if answer space is blank, accept (0, 6) written at *C* on the diagram
	D (3, 0)	B1	if answer space is blank, accept (3, 0) written at *D* on the diagram
	Additional Guidance		
	For each part mark the answer space unless blank		
	Allow x and y written above the coordinates but do not allow eg (0x, 6y)		

Q	Answer	Mark	Comments
23(b)	5	B1	
	3	B1	
	Additional Guidance		
	Mark the answer lines only		
	Do not allow eg (0, 5)		

Q	Answer	Mark	Comments
24	$\frac{52}{200}$ or $\frac{26}{100}$ or $\frac{13}{50}$	B1	oe fraction, decimal or percentage eg 0.26 or 26%
	Valid reason involving the number of trials	B1	eg it is from using the largest number of flips
	Additional Guidance		
	1st B1 Ignore simplification or conversion attempt after correct answer seen eg $\frac{52}{200} = 0.28$		1st B1
	52 out of 200 or 52 : 200		1st B0
	Probability from incorrect working eg $\frac{10+30+40+50}{50+100+150+200} = \frac{130}{500}$		1st B0
	Ignore irrelevant statements alongside a correct statement eg Using most flips and they could have done more		2nd B1
	Do not ignore incorrect statements alongside a correct statement eg Uses all the flips but they could have used 100 flips		2nd B0
	It uses all the flips		2nd B1
	More spins		2nd B1
	200 is the largest amount of data		2nd B1
	200 is the highest number		2nd B1
	200 is the total number of flips		2nd B0
	200 flips gives 52 heads		2nd B0
	200 is the final result		2nd B0
	That is the highest number in the table		2nd B0
	The highest results are more accurate		2nd B0
	100 flips is easier to work out		2nd B0
	He could use any of the results		2nd B0
	B0B1 is possible eg Answer 27% Reason Use the one from most spins		B0B1

Q	Answer	Mark	Comments
25	A change in distance for an integer time interval or a change in distance for a non-integer time interval with the corresponding time interval	M1	integer time intervals are [88, 92] [70, 74] [52, 56] [34, 38] [16, 20] may be seen on graph
	$\frac{\text{their change in distance}}{\text{corresponding time interval}}$	M1dep	oe eg $\frac{[88, 92]}{5}$ must see their change in distance and the corresponding time interval division by 1 may be implied
	18	A1	SC1 24
	Additional Guidance		
	M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts		
	90×5		M1M0
	(1 second) Answer [16, 20] is awarded at least M2		
	18 from incorrect working cannot score A1		
	18 followed by further work eg $18 \div 5 = 3.6$		M1M0