Question	Answer	Mark	Comments
1(a)	0	B1	oe fraction, decimal or percentage
	Additional Guidance		
	zero or nought	B1	
	0%	B1	
	$\frac{0}{n}$; n is an integer > 0, eg $\frac{0}{200}$	B1	
	With B1 scored, ignore probability words unless contradictory eg 0, impossible eg 0, unlikely	 B1 B0	
	Zero chance	B0	
	Nothing or nil	B0	
	0 out of 200	B0	
	0 in 200	B0	
	No	B0	
	No chance	B0	
	Impossible	B0	
	Not possible	B0	
	Any of the B0 responses above, with a B1 answer	B1	
	0 : 200 or 0 to 200 (even with B1 response, still scores B0)	B0	

1(b)	$200 - 79 - 90$ or 31 or $\frac{79}{200} + \frac{90}{200}$ or $1 - \left(\frac{79}{200} + \frac{90}{200}\right)$ or $\frac{(200 - 79 - 90)}{200}$ or $\frac{169}{200}$	M1	oe eg $200 - (79 + 90)$ eg $0.395 + 0.45$ or 0.845
	$\frac{31}{200}$ or 0.155 or 15.5%	A1	accept 0.16 or 16% if no errors seen

Additional Guidance

Ignore incorrect cancelling or incorrect conversion to a decimal or a percentage or incorrect rounding after correct answer seen	
eg $\frac{31}{200}$ seen, then answer $\frac{3}{20}$	M1A1
eg 15.5% seen, then answer 15%	M1A1
Answer 0.16 or 16% with M1 work not seen	M1A1
31 : 200 or 31 : 169 or 31 out of 200 or 31 in 200	M1A0
Ignore probability words unless contradictory	
eg $\frac{31}{200}$ unlikely	M1A1
eg $\frac{31}{200}$ likely	M1A0

2	☐ The number rolled is even ☑ The number rolled is greater than 1 ☐ The number rolled is less than 5 ☐ The number rolled is prime	B1	

3	**Alternative method 1**		
	1 – 0.4 – 0.25 or 0.35	M1	oe fraction or percentage
	their 0.35 × 80	M1dep	oe
	28	A1	
	Alternative method 2		
	0.4 × 80 or 32 and 0.25 × 80 or 20	M1	oe eg (0.4 + 0.25) × 80 or 0.65 × 80 or 52
	80 – their 32 – their 20	M1dep	oe eg 80 – their 52
	28	A1	
	Additional Guidance		
	Answer 28 out of 80		M1M1A1
	Answer $\frac{28}{80}$		M1M1A0
	Allow M1 even if not subsequently used		
	28 seen but answer given as 0.35		M1M0A0

4(a)	**Alternative method 1**		
	35 + 48 – their 32 or 35 – their 14 + 48 – their 18 or 51	M1	oe their 32 from (a) their 14 and their 18 from (a)
	$\frac{51}{83}$ or 0.61(4…) or 61(.4…)%	A1ft	ft their 32 from (a)
	Alternative method 2		
	$\left(1-\frac{2}{5}\right) \times 35 + \left(1-\frac{3}{8}\right) \times 48$ or $\frac{3}{5} \times 35 + \frac{5}{8} \times 48$ or 21 + 30	M1	oe
	$\frac{51}{83}$ or 0.61(4…) or 61(.4…)%	A1	
	Additional Guidance		
	Ignore incorrect conversion if correct fraction seen		
	If their answer in part (a) is a fraction, only allow follow through if their numerator is used in part (b)		
	Alt 1 ft decimal or percentage answers accept rounding to at least 2 sf		

Q	Answer	Mark	Comments
5	1 – (0.15 + 0.4) or 1 – 0.55	M1	oe
	0.45	A1	oe fraction or percentage SC1 0.81 or 81% or $\frac{81}{100}$
	Additional Guidance		
	Ignore incorrect simplification or conversion of a correct probability eg 0.45 converted to $\frac{4}{5}$		M1A1
	1 – (0.4 – 0.15)		M0A0
	0.45 seen as final answer but nothing in table		M1A1
	Subtraction from 1 may be implied eg 0.15 + 0.4 = 0.45, answer 0.55		M1A0
	Embedded answer eg 0.15 + 0.4 = 0.55 then 0.55 + 0.45 = 1		M1A0
	0.45 seen but contradictory value in table – table takes precedence		
	Working in percentages without the percentage sign is condoned for M1		

<table>
<tr><th>Q</th><th>Answer</th><th>Mark</th><th>Comments</th></tr>
<tr><td rowspan="6">6(a)</td><td>$\frac{9}{16}$</td><td>B1</td><td>oe fraction, decimal or percentage
eg 0.5625 or 56.25%</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">Ignore incorrect simplification or conversion of a correct probability to a fraction, decimal or percentage but not a ratio
eg1 $\frac{9}{16}$ 0.55
eg2 $\frac{9}{16}$ 9 : 16</td><td>B1

B0</td></tr>
<tr><td colspan="2">Ignore words alongside a correct probability
eg1 $\frac{9}{16}$ unlikely
eg2 9 out of 16 $\frac{9}{16}$</td><td>B1

B1</td></tr>
<tr><td colspan="2">Do not accept answer given in words or as a ratio
eg 9 out of 16</td><td>B0</td></tr>
</table>

Q	Answer	Mark	Comments
6(b)	Linear scale starting at 0 and increasing in 1s or 2s on vertical axis Vertical axis labelled frequency or f or Number or How many Bars or horizontal axis labelled with four types of juice (accept A, G, O, M) Four bars with equal widths Equal gaps or no gaps between the four bars All four heights correct	B3	bar chart could be horizontal bars may be in any order B3 for all criteria met B2 for 4 or 5 criteria met B1 for 3 criteria met or a fully correct 2-bar or 3-bar chart
	Additional Guidance		
	Mark intention throughout		
	If axes and labels do not match the orientation of the bar chart then only criteria 4, 5 and 6 may be awarded		B1 max
	All values not needed for axis scale. For example 0 can be implied, but spacing must be linear		
	Allow words after 'Number' on axis label, eg 'Number chosen' or 'Number of people'		
	Condone a different gap between the vertical axis and the first bar to the other, equal gaps		
	If no scale or a non-linear scale is given, bars with heights 6, 1, 4, 5 squares meet the height criterion		
	Allow heights criterion if their heights match their labels for their non-linear scale and it is linear between 1 and 6		
	Points only or vertical lines can score the marks for criteria 1, 2, 3 and 6		B2 max

Q	Answer	Mark	Comments
7(a)	$5 + 6 - 2 - 8$ or $5 + 6 - 8 - 2$ or $6 + 5 - 2 - 8$ or $6 + 5 - 8 - 2$	B1	

Q	Answer	Mark	Comments
7(b)	All ten correct pairs, ie 2, 6 6, 2 2, 8 8, 2 5, 6 6, 5 5, 8 8, 5 6, 8 8, 6	B2	B1 at least 5 correct pairs
	Additional Guidance		
	Condone duplication of 2, 5 and 5, 2 for B2		
	Condone duplications for B1 with at least 5 different correct pairs		

Q	Answer	Mark	Comments
7(c)	$\frac{3}{4}$ or $\frac{9}{12}$	B1ft	oe fraction, decimal or percentage correct answer or ft their table in (b)
	Additional Guidance		
	Answer may come from considering the four cards or from their table		
	Ignore attempts to convert a correct fraction		
	Ignore probability words		
	9 out of 12 or 9 in 12 together with a correct answer		B1
	9 out of 12 or 9 in 12 alone		B0
	9 : 12 with a correct answer		B0

Q	Answer	Mark	Comments
8(a)	B2, C5, E3, D5	B2	B1 4 correct with at most 2 incorrect or any 2 or 3 correct with at most 1 incorrect or any 1 correct with none incorrect or no written answer, but all 4 correct marked on diagram with none incorrect
	Additional Guidance		
	Only mark the diagram with no written answer or 4 on answer line		
	4 on answer line with all 4 correct marked on diagram		B2
	Ignore B3 repeated		
	Ignore repetition of correct answers		
	Condone eg 5C, 5,C, C,5, (5,C), (C,5) for B2 and B1		
	B2, 5C, (E,3), 5,D, B3		B2

Q	Answer	Mark	Comments
8(b)	$\frac{1}{36}$ or 0.027(…) or 0.028 or 2.7(…)% or 2.8%	B1	oe
	Additional Guidance		
	Ignore attempts to convert a correct fraction		
	Ignore probability words		
	1 out of 36 or 1 in 36 together with a correct answer		B1
	1 out of 36 or 1 in 36 alone		B0
	1 : 36 with a correct answer		B0

Q	Answer	Mark	Comments
8(c)	It is greater than the answer to part (b) with valid reason	B1	eg now there are 4 squares to choose from (it is) $\frac{1}{4}$ or (it is) $\frac{9}{36}$
	Additional Guidance		
	Ignore incorrect statements alongside correct statements		
	Ignore any repeated incorrect probability from part (b), but a probability for part (c), if shown, must be correct		
	No box ticked and 'it is greater as there are 4 corners'	B1	
	She is restricted to a smaller number of options	B1	
	Only four squares to choose from	B1	
	Fewer boxes	B1	
	The lower the denominator the higher the chance	B1	
	There are less squares to choose from	B1	
	There are 4 corners so it is 1 in 4	B1	
	There are 4 chances to put it in a corner	B1	
	There are 3 other boxes she can put it in	B1	
	(It's now a) 1 in 4 (chance)	B1	
	There are more corner squares or There are more corners	B0	
	There are 4 more corners she can put the cross	B0	
	She's more likely to put it in a corner square	B0	
	There's a greater chance for F6	B0	
	Because there are 4 corners, so it is $\frac{4}{36}$ (incorrect probability)	B0	
	There are only 4 corner squares to choose from so it's 1:4	B0	
	There are 4 chances to put it in a corner so it is 1 in 9	B0	
	Because it's a corner square	B0	

Q	Answer	Mark	Comments
9	**Alternative method 1**		
	10×8 or 80	M1	oe 80 may be seen as a denominator
	$\frac{2}{5} \times$ their 80 or 32	M1	oe their 80 can be any integer >10 32 will imply M1M1 and may be seen as a numerator
	their 80 – their 32 – 10 or $\frac{38}{80}$ or their 32 + 10 or 42	M1dep	oe calculation dep on 2nd M1 42 will imply M1M1M1dep and may be seen as a numerator
	38	A1	
	Alternative method 2		
	10×8 or 80	M1	oe 80 may be seen as a denominator
	$\frac{1}{8} + \frac{2}{5}$ or $\frac{21}{40}$ or $1 - \frac{1}{8} - \frac{2}{5}$ or $\frac{19}{40}$	M1	oe
	their $\frac{21}{40} \times$ their 80 or 42 or their $\frac{19}{40} \times$ their 80	M1dep	oe calculation dep on M1M1 42 will imply M1M1M1dep and may be seen as a numerator
	38	A1	
	Additional Guidance		
	Alt 1 $\frac{2}{5} \times 40 = 15$, $40 - 15 - 10 = 15$ $\frac{2}{5} \times 40 = 16$, $16 + 10$		M0M1M1depA0 M0M1M1depA0

Q	Answer	Mark	Comments
10(a)	8 in Time exercising Less than 1 hour	B1	
	23 in Exercise taken No	B1	
	58 in Total number of students	B1ft	ft 35 + their 23 or 27 + their 8 + their 23
	Additional Guidance		
	8 in Time exercising Less than 1 hour 47 in Exercise taken No 82 in Total number of students	B1 B0 B1ft	
	7 in Time exercising Less than 1 hour 25 in Exercise taken No 59 in Total number of students	B0 B0 B1ft	

Q	Answer	Mark	Comments
10(b)	$\frac{27}{35}$ or 0.77(…) or 77(. …)%	B1	oe fraction
	Additional Guidance		
	Ignore attempts to simplify or convert after correct fraction seen eg1 $\frac{27}{35}$ seen, answer $\frac{5}{7}$ eg2 $\frac{27}{35}$ seen, answer 7.7%	 B1 B1	
	Ignore words if correct answer seen eg1 $\frac{27}{35}$ seen, answer 27 out of 35 eg2 77%, unlikely	 B1 B1	
	Answer given as ratio (even if correct answer also seen) eg 27 : 35	 B0	
	Answer only in words eg 27 out of 35	 B0	
	Only 77 (without %)	B0	

Q	Answer	Mark	Comments
11	Ticks Yes and valid reason	B1	eg ticks Yes and she has thrown more often
	Additional Guidance		
	Ignore incorrect or irrelevant statements alongside correct statements, unless contradictory		
	Ticks No	B0	
	Ticks Yes and 60 is more than 40	B1	
	Ticks Yes and 60 is 20 more than 40	B1	
	Ticks Yes and 60 is 10 more than 40 (ignore incorrect value 10)	B1	
	Ticks Yes and she has more data to look at	B1	
	Ticks Yes and her number of throws is higher	B1	
	Ticks Yes and Bianca used more throws which gives her a higher chance of getting heads	B1	
	Ticks Yes and Adam has less number of throws and has more heads (ignore irrelevant has more heads)	B1	
	Ticks Yes and Bianca throws more coins	B1	
	Ticks Yes and she threw it 60 times, Adam only 40	B1	
	Ticks Yes and she threw it 60 times, Adam 40	B0	
	Ticks Yes and she threw it 60 times and got 20	B0	
	Ticks Yes and the probability is $\frac{20}{60}$	B0	
	Ticks Yes and because her total is higher	B0	

Q	Answer	Mark	Comments
12(a)	All values correct	B2	B1 1 or 2 rows correct
	Additional Guidance		
	<table><tr><th></th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th></tr><tr><td>$2x$</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td></tr><tr><td>$3x$</td><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td></tr><tr><td>x^2</td><td>1</td><td>4</td><td>9</td><td>16</td><td>25</td><td>36</td></tr></table>		B2

Q	Answer	Mark	Comments
12(b)	$\frac{8}{18}$ or $\frac{4}{9}$ or 0.44(4…) or 44(.4…)%	B1ft	oe fraction, decimal or percentage ft their table with $\geqslant$ 12 values must be using 18 for the total number of possible scores
	Additional Guidance		
	Ignore simplification or conversion attempt (not ratio) after correct probability seen		
	Ratio answer eg 8 : 18, even alongside a correct probability is B0		
	ft decimals or percentages must be correct to the same accuracy as in the scheme eg 10 winning values in their table $\frac{10}{18}$ or 0.55(5…) or 0.56 or 0.556 or 55(.5…)% or 56% or 55.6%		B1ft

Q	Answer	Mark	Comments
12(c)	711 × their $\frac{8}{18}$	M1	oe ft their probability from (b) or if no probability in (b), ft their table with ⩾ 12 values where 0 < their probability < 1 probabilities, if rounded in (c), must be truncated or rounded to at least 2 sf
	316	A1	SC2 395
	Additional Guidance		
	Answer 316		M1A1
	$\frac{316}{711}$ on answer line		M1A0
	Condone 316 out of 711		M1A1
	Do not treat estimating by rounding as a misread eg1 700 used instead of 711 eg2 (b) 0.44 (c) 0.4 × 711 (rounded to 1sf in (c) for the probability) eg3 (b) 0.4 (c) 0.4 × 711 (follows through their (b))		 M0A0 M0A0 M1A0
	Do not allow ft for a ratio from (b) but may ft their (a) instead		
	For 0.44 × 711, accept 44% × 711 but do not accept 44% of 711 unless recovered		
	The method mark may be implied by a ft answer (decimal or truncated to the nearest integer or rounded up to the nearest integer) eg1 (b) $\frac{7}{18}$ (c) 276.5 or 276 or 277 (correct ft method implied using (b)) eg2 (a) completed table has 7 winning values (b) no probability shown (c) 276.5 or 276 or 277 (correct ft method implied using (a))		 M1A0 M1A0

Q	Answer	Mark	Comments
13(a)	(green in A =) $28 \div 2$ or 14 or (red in B =) $20 \div 5 \times 3$ or 12 or (total in A =) $28 \times \frac{3}{2}$ or (total in B =) $20 \times \frac{8}{5}$	M1	oe
	14 and 12 or (total in A =) 42 or (total in B =) 32 or (total green =) 34 or (total red =) 40	A1	may be implied by final answer
	74	A1	SC2 116 (using 56 green discs in A) or 26 (green in A + red in B)
	Additional Guidance		
	$14 + 28 + 15 = 57$ (implied correct interim total for Bag A) $14 + 28 + 15 + 20 = 77$ (implied correct interim total for Bag A) 14 and 15, with 77 on answer line (implied correct interim total for Bag A)		M1A1A0 M1A1A0 M1A1A0
	$14 + 28 + 15 + 20$, no answer (no implied correct interim total)		M1A0A0

Q	Answer	Mark	Comments
13(b)	0	B1	oe fraction decimal or percentage
	1	B1	oe fraction decimal or percentage
	$\frac{28}{48}$ or $\frac{14}{24}$ or $\frac{7}{12}$ or 0.58(3…)	B1	oe fraction decimal or percentage
	Additional Guidance		
	Ignore incorrect simplification after correct answer seen		
	Do not accept probabilities written as ratios		
	First B1 $\frac{0}{14}$ (denominator may be any value except 0)		B1
	First B1 $\frac{0}{0}$		B0
	Second B1 $\frac{12}{12}$		B1
	Do not allow if only words given eg First answer Impossible Second answer Certain		B0B0
	Penalise only the first occurrence of "out of" eg 0 out of 48, 48 out of 48, 28 out of 48 eg 0, 1, 28 out of 48		B0B1B1 B1B1B0
	Penalise only the first occurrence of an incorrect but consistent denominator eg $\frac{0}{74}, \frac{12}{74}, \frac{28}{74}$ eg 0, $\frac{12}{116}, \frac{28}{74}$		B1B0B1 B1B0B0

Q	Answer	Mark	Comments
14(a)	$\frac{17}{25}$ or 0.68 or 68% or 25 – 17 or 8 seen	M1	oe may be seen in a calculation eg $1 - \frac{17}{25}$
	$\frac{8}{25}$ or 0.32 or 32%	A1	oe
	Additional Guidance		
	Ignore simplification or conversion if correct answer seen		
	$\frac{8}{25}$ in working or on answer line with 8 on answer line		M1A0
	Ignore words if correct answer seen eg $\frac{8}{25}$ unlikely		M1A1
	Answer 8 : 25 or 8 : 17 or 17 : 8 (even if correct answer also seen)		M1A0
	8 out of 25 without correct answer seen		M1A0
	Answer 17 : 25 only		M0A0
	eg $\frac{8}{17}$ or $\frac{1}{8}$ or 8% implies 8		M1

Q	Answer	Mark	Comments
15(a)	10 + 8 + 7 + 5 + 3 or 33 or 40 – 7 or 33 or $\frac{7}{40}$	M1	oe
	$\frac{33}{40}$ or 0.825 or 82.5%	A1	oe accept 0.83 or 83%
	Additional Guidance		
	M1 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	Ignore conversion attempt after correct answer seen		
	33 out of 40		M1A0
	33 : 40		M1A0

Q	Answer	Mark	Comments
16(a)	$56 + 24$ or 80	M1	
	$0.4 \times$ their 80 or 32	M1dep	oe eg $0.4 \times 56 + 0.4 \times 24$ 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 $80 \times 40\%$		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 $4 \times 8 = 32$ eg $0.1 \times 80 = 6$ and $4 \times 6 = 24$ eg 80 followed by $10\% = 6$ and $4 \times 6 = 24$		 M1M1 M1M1 M1M0

Q	Answer	Mark	Comments
17(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
17(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	