Paper: 1MA1/1F				
Question	**Working**	**Answer**	**Mark**	**Notes**
6 (i) **Q1** (ii)		× at ½ × at 0	B1 B1	

Paper: 1MA1/1F				
Question	**Working**	**Answer**	**Mark**	**Notes**
12 **Q2**		$\frac{7}{17}$	M1 A1	for $\frac{a}{17}$ where a ≠7 but < 17 or $\frac{7}{b}$ where b≠17 but > 7 o

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
7 **Q3**		0.985	B1	oe

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
17 **Q4**		98	P1	for process to find P(1), e.g. 1 – 0.17 – 0.18 – 0.09 – 0.15 – 0.1 (= 0.31) or for a process to find P(1 or 3), e.g. 1 – 0.17 – 0.09 – 0.15 – 0.1 (= 0.49)
			P1	for process to find the number of 3s, e.g. 0.18 × 200 (=36) or process to find the number of 1s, e.g. P(1) × 200 (= 62), or process to find the number of (1 or 3)s, eg [P(1) + 0.18] × 200 or process to find any expected frequency, using any probability × 200, eg 0.17 × 200
			A1	cao
				OR
		98	P1	for process to find P(2 or 4 or 5 or 6), eg 0.17 + 0.09 + 0.15 + 0.1 (= 0.51)
			P1	for process to find the number of (2 or 4 or 5 or 6)'s, eg "0.51" × 200 (= 102)
			A1	cao

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
27 (a)	$\frac{7}{10}, \frac{4}{9}, \frac{5}{9}, \frac{4}{9}$	B2	for all probabilities correct (oe)	
		(B1	for 2 or 3 correct)	
(b)	$\frac{15}{90}$	M1	for $\frac{3}{10} \times \frac{5}{9}$ oe	
Q5		A1	$\frac{15}{90}$ oe	Accept any equivalent fraction, decimal form 0.16(6...) or 0.17 or percentage form 16(.6...)% or 17%

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12	$\frac{29}{49}$	P1	for $\frac{29}{a}$ where $a > 29$ **or** $\frac{b}{49}$ where $b < 49$ **or** $1 - \frac{20}{49}$ **or** $\frac{49-20}{c}$ where $c > 49 - 20$ **OR** for 29 and 49 with incorrect notation eg 29 : 49	
Q6		A1	oe	Acceptable equivalents are any equivalent fraction to $\frac{29}{49}$, decimal 0.59 (…) or 59 (…)%

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
6 (a)	Cross at $\frac{1}{2}$	B1	cross at $\frac{1}{2}$	Accept any other marks near to ½ if the intention is clear; do not accept if any other marks are shown.
Q7 (b)	$\frac{2}{6}$	B1	$\frac{2}{6}$ oe	Acceptable equivalents are equivalent fractions to $\frac{2}{6}$ eg $\frac{1}{3}$ decimal 0.33(…) or 33(..)%

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
14 (a)	0.3	B1	for 0.3 oe	Acceptable equivalents are 3/10 or 30% Answer on answer line takes precedence
(b)	4	B1	4 or ft their (a)	Do not accept a statement of probability (eg 0.1)
(c)	12	M1	for 0.2 × 60 oe	Do not accept the use of any other probability
Q8		A1	cao	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
7 (a)	D	B1	cao	
(b)	B	B1	cao	
(c)	Shown	M1	for number of green counters, eg $12 - (3+1+2) = 6$ **OR** for $\frac{3}{12}$ oe **or** $\frac{1}{12}$ oe **or** $\frac{2}{12}$ oe linked to the appropriate colour	This is awarded for a correct first step
Q9		M1	for $1 - (\text{"}\frac{3}{12}\text{"} + \text{"}\frac{1}{12}\text{"})$ $(= \frac{8}{12})$ or "$\frac{2}{12}$"+ $\frac{\text{"6"}}{12}$ $(= \frac{8}{12})$ **OR** for method to find $\frac{2}{3}$ of 12, eg. $12 \div 3 \times 2$ $(= 8)$	This is awarded for a fully correct method from which the correct answer of $\frac{2}{3}$ can be found Sight of $\frac{8}{12}$ gets M2
		C1	for correct conclusion supported by accurate figures, eg $\frac{8}{12} = \frac{2}{3}$ **or** $\frac{2}{3}$ of 12 = 8 **and** number of yellow + green = 2 + 6 = 8	

Paper: 1MA1/2F					
Question		**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13 **Q10**		$\frac{338}{350}$	M1 A1	for 350 – 12 (=338) **or** $\frac{y}{350}$ oe where $y < 350$ **and** $y \neq 12$ **or** $1-\frac{12}{350}$ oe oe	For the method mark probability fractions can be expressed as equivalent expressions, even if not correct probability notation eg. 338 : 350 scores M1 A0 Using correct probability notation Allow 0.96 to 0.97 or 96% to 97%

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
16 **Q11**	blue 0.15 green 0.2	P1 P1 P1 A1	for 1 – 0.4 – 0.25 (=0.35) oe for using the ratio, eg "0.35" ÷ (3 + 4) (=0.05) **or** "0.35" × $\frac{3}{7}$ (=0.15) **or** "0.35" × $\frac{4}{7}$ (=0.2) for a complete process 3 × "0.05" (=0.15) **and** 4 × "0.05" (=0.2) **or** "0.35" – "0.15" (=0.2) **or** "0.35" – "0.2" (=0.15) **or** green 0.15, blue 0.2 oe	May work in percentages, condone missing % sign If the two numbers in the table sum to 0.35 that implies P1 One correct value in the table implies P2 7 can come from 3+4 Accept answers given in decimals, fractions or percentages.

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
17 (i)	Maxine with bigger number of trials	C1	for Maxine with reason **Acceptable examples** She throws the coin more times than Stuart **Not acceptable examples** Maxine throws it 50 times She gets more Tails Stuart (he) ……	
Q12				
(ii)	$\frac{37}{60}$	B1	for $\frac{37}{60}$ oe	

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
16 (a)(i)	B	B1	for B, accept 0.033 on the answer line	
(ii)	C	B1	for C, accept $\frac{1}{3}$ on the answer line	
(b)	Statement	C1	eg No with $\left(\frac{1}{3}\right)$ and $\frac{2}{3}$ or No, probabilities would need to be $\frac{1}{2}$ or No since $\frac{1}{3}+\frac{1}{3}$ does not equal 1 or No since tails is 67% (or 0.67)	
Q13				Accept rounded conversions **seen** to decimals or percentages if the reasoning is correct
(c)	132	M1	for 4000×0.033 **OR** $\frac{132}{4000}$	
		A1	cao	132 out of 4000 is an acceptable answer

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
6 (a)	cross at ½	B1	Cross (or mark) at ½	Accept any mark near to ½ if the intention is clear; do not accept if any additional marks are shown
Q14				
(b)	cross at 0	B1	Cross (or mark) at 0	Accept any mark near to 0 if the intention is clear; do not accept if any additional marks are shown

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
7 (a)	A	B1	cao	
(b)(i)	Cross at correct position	B1	for cross at $\frac{1}{4}$	Cross or other indication may be seen on or near line provided within tolerance
(b)(ii)	$\frac{1}{8}$	B1	for $\frac{1}{8}$ oe	Accept any equivalent fraction, decimal form 0.125 or percentage form 12.5% Do **not** accept 1 : 8 or 1 to 8 or 1 out of 8
Q15				

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13 (a)	$\frac{4}{15}$	B1	oe	4 : 15 gets B0
(b)	0.7	B1	for 0.7 oe or $\frac{7}{10}$ oe or 70%	
Q16				

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
10 (a)	cross at 0	B1	cao	
(b)	cross at $\frac{1}{2}$	B1	cao	
(c)	5 8	M1	for $\frac{"5"}{a}$ where $a >$ "5" or $\frac{b}{8}$ where $b < 8$ **or** for identifying all the even numbers, 2, 6 and 8 **or** for writing the correct probability using the wrong notation eg 5 : 8	To ft "5" the "5" needs to be clearly stated as being the number of even numbers; otherwise accept 5 only; could be indicated alongside the given numbers.
Q17		A1	for $\frac{5}{8}$ oe	Could be written as a decimal (0.62, 0.625 or 0.63) or equivalent percentages to these

Paper 1MA1: 1F				
Question	**Working**	**Answer**	**Mark**	**Notes**
17 **Q18**		$\frac{4}{9}$	M1 A1	for listed outcomes (allow 1 error eg omission or repeat) **or** fractions $\frac{1}{3}\times\frac{2}{3}+\frac{2}{3}\times\frac{1}{3}$ for $\frac{4}{9}$ oe

Paper: 1MA1/2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
18 (a) **Q19** (b)		31.4 No (supported)	P1 A1 C1	for working with circumference formula, eg $\pi \times 80$ (=251.(….)) oe for answer in the range 31.4 to 31.5 accept 10π Mean distance stays the same with reason, eg total distance remains unchanged or same number of points

Paper: 1MA1/3F				
Question	**Working**	**Answer**	**Mark**	**Notes**
26 (a)		Mel (supported)	B1	Mel with reference to greatest number of throws
(b)		$\frac{2}{9}$	M1	selects overall total and multiplies P(point up)×P(point down) eg $\frac{50}{150} \times \frac{100}{150}$ oe (accept $\frac{14}{45} \times \frac{31}{45}$ or $\frac{27}{80} \times \frac{53}{80}$ or $\frac{9}{25} \times \frac{16}{25}$)
Q20			A1	for $\frac{2}{9}$ oe

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
14 (a)	No (supported)	C1	No and explanation eg "it is $\frac{1}{6}$" or "each number is the same probability" **Acceptable examples** No, they are both 1/6 (accept 1 in 6 or 1 : 6 etc) No, they are both the same No, an equal chance No, it's a fair dice No, there's only one of each number **Not acceptable examples** No, it's an even chance No, it's 50 – 50 No, 1 : 6	
Q21				
(b)	No (supported)	C1	No and explanation eg "it is out of 36" or "it is $\frac{1}{6}$ times $\frac{1}{6}$" **Acceptable examples** No, the probability is 1/36 No, it's out of 36 No, he should times not add **Not acceptable examples** No, it's 1/6 × 1/6, the probability is 1/12 No, he's more likely to get it once only No, there's only one 6 on a dice No, you will have a 2/12 chance	
(c)	1H, 2H, 3H, 4H, 5H, 6H, 1T, 2T, 3T, 4T, 5T, 6T	B2 (B1	for all 12 outcomes with no extras or repeats for at least 6 correct outcomes, ignoring extras and repeats)	Pairs must be unambiguous Accept words and abbreviations

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
22 **Q22**	Probabilities should sum to 1 0.35 and 0.65 reversed	C1 C1	for stating that the probabilities should total 1 eg 0.25 should be 0.35 for recognising that the 0.35 and 0.65 in the first branches for the 2nd throw should be reversed eg, "for the second throw, the probability it lands on 4 should be 0.65"	 Can be shown on the diagram

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
24 (a) **Q23**	8	P1	for process to find sum of unknown probabilities, eg 1 – 0.45 – 0.25 (= 0.3) **OR** to find the total number of counters in the bag, eg $\frac{18}{0.45}$ (= 40) **OR** to find the number of yellow counters, eg $\frac{0.25}{0.45} \times 18$ (= 10)	Award mark for any two probabilities given that sum to 0.3 eg given in the table.
		P1	for process to find P(red) = 0.2 oe **or** P(white) = 0.1 oe **OR** for process to find the total number of red and white counters, eg "40" – 18 – "10" (=12) **OR** for process to derive an equation in x, eg $2x + x = 1 - 0.45 - 0.25$ or $2x + x =$ "0.3" or $x = 0.1$	Award P2 for P(red) or P(white) (could be shown in table) Equations could be given as written statements or working but must be fully equivalent.
		P1	for a complete process to find the number of red counters, eg $\frac{2 \times 0.1}{0.45} \times 18$ or $\frac{2}{3} \times$ "12" or 0.2 × "40" or $\frac{0.2}{0.025}$	
		A1	cao	
(b)	Explanation	C1	for explanation eg 0.5 multiplied by an odd number will never be a whole number, for half of a number to be an integer that number must be even, you can't have half a marble	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
22 (a)	0.4, 0.4	P1	for process to find sum of unknown probabilities, eg 1 – 0.2 (= 0.8)	Award mark for any two probabilities given that sum to 0.8, eg given in the table
		A1	oe	Accept any equivalent fraction or 40%
(b) **Q24**	60	P1	for complete process to find total number of cubes, eg 12 ÷ 0.2 **or** 12 × 5 **or** ("0.4" ÷ 0.2) ×12 + ("0.4" ÷ 0.2) ×12 + 12 **OR** states 0.1 = 6 **or** 0.4 = 24	
		A1	cao	

16 (a)	$\frac{5}{11}$	M1	for $\frac{5}{n}$ where $n > 5$ or $\frac{m}{"11"}$ where $m < 11$	where "11" comes from 5+2+4
Q25		A1	for $\frac{5}{11}$ oe	Accept any equivalent fraction, decimal form 0.45(45...) or percentage form 45(.45...)%
(b)	0.7	B1	for 0.7 oe	Accept any equivalent fraction eg $\frac{7}{10}$ or percentage form eg 70%

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
21 (a)	25	B1	cao	
(b)	Simon with reason	C1	for Simon with reason **Acceptable examples** Simon; he uses more trials Simon; he does 10 times more Simon, since 100 > 10 Simon because he threw it more frequently / often Simon since he has a larger range of results **Not acceptable examples** Paula …. Simon (unsupported) Simon because he threw it 100 times He gets more tails	If figures are given as part of the answer they must be correct
Q26				

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
27 (a)	$\frac{1}{3}, \frac{2}{3}$ $\frac{1}{3}, \frac{2}{3}, \frac{1}{3}, \frac{2}{3}$	B2	six fully correct probabilities	Accept any equivalent fraction, decimal form 0.33(3...) and 0.66(6...) or 0.67 or percentage form 33(.3...)% and 66(.6...)% or 67%
		(B1	at least 2 correct probabilities)	
Q27				
(b)	$\frac{2}{9}$	M1	for $\frac{1}{3} \times \frac{2}{3}$ oe or ft probabilities from diagram	
		A1	for $\frac{2}{9}$ oe	Accept any equivalent fraction, decimal form 0.22(2...) or percentage form 22(.2...)%

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
26 (a)	0.5, 0.3	P1	for $1 - 0.05 - 0.15$ (=0.8)	Award this mark for any two probabilities that sum to 0.8
Q28		A1	oe	
(b)	120	M1	$18 \div 0.15$ oe **or** $6 + 18 + a + b$ where $a + b = 96$	
		A1	cao	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
17 (a)	$\frac{70}{100}$	M1	for 100 – 30 (= 70) or $\frac{30}{100}$ oe	
		A1	for $\frac{70}{100}$ oe	Accept any equivalent fraction, decimal form 0.7 or percentage form 70%
(b)	45	P1	for start to process, eg 30 ÷ 2 (= 15)	
		A1	cao	
(c)	No with reason	C1	for No with reason **or** ft (b) **Acceptable examples** the number of red and yellow counters is an odd number 25 cannot be divided by 2 to give a whole number You can't have half a counter You can't split it evenly **Not acceptable examples** Yes ….. they are in the ratio 2 : 3 one must be more than the other	If the reason is supported by numerical evidence then that evidence must be accurate. can ft (b) Note: if the answer to part (b) is an even number then 'yes' with supporting evidence is an acceptable answer

Q29

Paper: 1MA1/3F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
26 (a)	0.7	B1	for 0.7 on the first branch	Accept equivalent fractions or percentages for probabilities
Q30	0.65, 0.65	B1	for 0.65, 0.65 on the second branches	
(b)	0.105	M1	for 0.3 × 0.35	
		A1	oe	

Paper: 1MA1/2F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
20 (a)	0.87, 0.94, 0.94	B2	for all probabilities correct	Accept any equivalent fraction, eg $\frac{87}{100}, \frac{47}{50}$
		(B1	for 0.87 or 0.94 correctly placed)	or equivalent percentage form 87%, 94%
(b)	0.0078	M1	for 0.13 × 0.06 oe	
Q31		A1	0.0078 oe	Accept any equivalent fraction, eg $\frac{39}{5000}$ or equivalent percentage form 0.78% or 7.8×10^{-3}