

Q1. (2017)

9	Alternative method 1		
	40	B1	May be implied eg $\frac{2}{40}$
	$2 + x + 2x + 5 = \text{their } 40$ or $3x + 7 = \text{their } 40$ or $(\text{their } 40 - 2 - 5) \div 3$ or $33 \div 3$	M1	oe equation eg $3x + 5 = 38$ (scores B1M1) their 40 must be an integer
	$(x =) 11$	A1ft	ft B0M1 Does not have to be an integer Accept answer rounded or truncated to at least 2 sf
	$\frac{27}{40}$ or 0.675 or 67.5%	B1ft	Only ft evaluation of $\frac{2 \times \text{their integer } x + 5}{40}$ and $0 < \text{answer} < 1$ Denominator must be 40 (may subsequently be simplified)
	Alternative method 2		
	$\frac{2}{2+x+2x+5} = \frac{1}{20}$ or $\frac{x+2x+5}{2+x+2x+5} = \frac{19}{20}$	M2	oe equation
	$(x =) 11$	A1	
	$\frac{27}{40}$ or 0.675 or 67.5%	B1ft	Only ft evaluation of $\frac{2 \times \text{their integer } x + 5}{40}$ and $0 < \text{answer} < 1$ Denominator must be 40 (may subsequently be simplified)

Q2. (2020)

Q	Answer	Mark	Comments
16	$\frac{4}{11} \times 22$ or 8 or $\frac{40}{100} \times 5$ or 2 or $22 \times 7 \times 5$ or 770 or $\frac{4}{11} \times \frac{40}{100}$ or $\frac{160}{1100}$ or $\frac{8}{55}$	M1	oe accept $\frac{8}{22}$ for 8 accept $\frac{2}{5}$ for 2
	$\frac{4}{11} \times 22 \times 7 \times \frac{40}{100} \times 5$ or $8 \times 7 \times 2$	M1dep	oe eg $\frac{4}{11} \times \frac{2}{5} \times 770$ or $\frac{8}{55} \times 770$ or $\frac{8}{22} \times \frac{7}{7} \times \frac{2}{5}$ or $\frac{112}{770}$
	112	A1	allow 112 out of 770
	Additional Guidance		
	$\frac{112}{770}$		M1M1A0
	$\frac{8}{55}$ from $\frac{112}{770}$		M1M1A0
	$\frac{8}{55}$ from $\frac{4}{11} \times \frac{2}{5} (\times 1)$		M1M0A0
	Allow [0.36, 0.364] for $\frac{4}{11}$ eg $0.36 \times 22 = 7.92$ (allow 7 if method seen) $7.92 \times 7 \times 2$ (or $7 \times 7 \times 2$)		M1 M1A0

Q3. (2021)

(A)

Q	Answer	Mark	Comments
17(a)	Alternative method 1		
	$\frac{2}{11} \times \frac{5}{9}$ or $\frac{10}{99}$ or $\frac{9}{11} \times \frac{4}{9}$ or $\frac{36}{99}$	M1	oe fractions, decimals or percentages
	$\frac{2}{11} \times \frac{5}{9} + \frac{9}{11} \times \frac{4}{9}$ or $\frac{10}{99} + \frac{36}{99}$	M1dep	oe fractions, decimals or percentages
	$\frac{46}{99}$	A1	oe fraction, decimal or percentage allow 0.465 or better allow 46.5% or better SC2 $\frac{54}{99}$ oe

17(a) cont	Alternative method 2		
	$\frac{2}{11} \times \frac{4}{9}$ or $\frac{8}{99}$ or $\frac{9}{11} \times \frac{5}{9}$ or $\frac{45}{99}$	M1	oe fractions, decimals or percentages
	$1 - \frac{2}{11} \times \frac{4}{9} - \frac{9}{11} \times \frac{5}{9}$ or $1 - \frac{8}{99} - \frac{45}{99}$ or $1 - \frac{53}{99}$	M1dep	oe fractions, decimals or percentages
	$\frac{46}{99}$	A1	oe fraction, decimal or percentage allow 0.465 or better allow 46.5% or better SC2 $\frac{54}{99}$ oe
	Additional Guidance		
	For M marks, accept values given as recurring decimals or correctly rounded to 2 dp or better eg Alt 1 $0.18 \times 0.56 + 0.818 \times 0.44$	M1M1	
	M1 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	Ignore conversion attempt if correct answer seen		

(B)

Q	Answer	Mark	Comments
17(b)	$\frac{9}{11} \times \frac{8}{10}$	M1	oe fractions, decimals or percentages
	$\frac{72}{110}$ or $\frac{36}{55}$	A1	oe fraction, decimal or percentage allow [0.65, 0.655] allow [65%, 65.5%]
	Additional Guidance		
	For M1, accept $\frac{9}{11}$ given as a recurring decimal or correctly rounded to 2 dp or better eg 0.82×0.8	M1	
	Ignore conversion attempt after correct answer seen		

Q4. (2021)

Q	Answer	Mark	Comments
22	Alternative method 1		
	All three of 1, 8 and 1, 2, 4, 8 and 1, 3, 5, 7, 9 or all three of 2, 4 and 5	B2	B1 any two correct do not allow 2, 4 or 5 from an incorrect list of numbers
	their $2 \times$ their $4 \times$ their 5 or 40	M1	working out the number of possible codes ft their non-zero number of options for each digit implied by $\frac{1}{\text{their } 2} \times \frac{1}{\text{their } 4} \times \frac{1}{\text{their } 5}$
	$\frac{1}{40}$	A1ft	oe fraction, decimal or percentage ft their non-zero number of options for each digit
	Alternative method 2		
	All three of $\frac{1}{2}$ and $\frac{1}{4}$ and $\frac{1}{5}$	B2	B1 any two correct oe fractions, decimals or percentages do not allow $\frac{1}{2}$, $\frac{1}{4}$ or $\frac{1}{5}$ from an incorrect list of numbers
	their $\frac{1}{2} \times$ their $\frac{1}{4} \times$ their $\frac{1}{5}$	M1	oe fractions, decimals or percentages allow their $\frac{1}{2}$ to be 1 their $\frac{1}{4}$ must be < 1 their $\frac{1}{5}$ must be < 1
	$\frac{1}{40}$	A1ft	oe fraction, decimal or percentage ft their probabilities

Q5. (2023)

(A)

Q	Answer	Mark	Comments																															
7(a)	All values correct	B2	B1 1 or 2 rows correct																															
	Additional Guidance																																	
	<table><tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></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>x²</td><td>1</td><td>4</td><td>9</td><td>16</td><td>25</td><td>36</td></tr></table>							1	2	3	4	5	6	2x	2	4	6	8	10	12	3x	3	6	9	12	15	18	x ²	1	4	9	16	25	36
	1	2	3	4	5	6																												
2x	2	4	6	8	10	12																												
3x	3	6	9	12	15	18																												
x ²	1	4	9	16	25	36																												

(B)

Q	Answer	Mark	Comments
7(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 ≥ 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

(C)

Q	Answer	Mark	Comments
7(c)	$711 \times \text{their } \frac{8}{18}$	M1	oe ft their probability from (b) or if no probability in (b), ft their table with ≥ 12 values where $0 < \text{their probability} < 1$ 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		M0A0
	eg2 (b) 0.44 (c) 0.4×711 (rounded to 1sf in (c) for the probability)		M0A0
	eg3 (b) 0.4 (c) 0.4×711 (follows through their (b))		M1A0
	Do not allow ft for a ratio from (b) but may ft their (a) instead		
	For 0.44×711 , accept $44\% \times 711$ 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))		M1A0
	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