

Paper: 1MA1/2H				
Question	Answer	Mark	Mark scheme	Additional guidance
20 (b)	28	P1	for $\frac{n}{n+8}$ and $\frac{n-1}{n+7}$ oe	
		P1	forms an appropriate equation, eg $\frac{n}{n+8} \times \frac{n-1}{n+7} = \frac{3}{5}$	
		P1	for correctly forming a quadratic ready for solving, eg $an^2 + bn + c (= 0)$, $2n^2 - 50n - 168 (= 0)$, $n^2 - 25n - 84 (= 0)$ oe	Note we do not need to see “= 0”; just the LHS is sufficient.
		P1	process to solve quadratic equation, ft a 3 term quadratic factorising eg $(n + 3)(n - 28) (= 0)$ oe or completing the square or correct use of formula eg $\frac{- -25 \pm \sqrt{25^2 - 4 \times -84}}{2}$, $\frac{- -50 \pm \sqrt{50^2 - 4 \times 2 \times -168}}{2 \times 2}$	
		A1	cao	Award 0 marks for a correct answer with no supportive working.

Paper: 1MA1/3H				
Question	Answer	Mark	Mark scheme	Additional guidance
6 (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
Q25		A1	oe	
(b)	120	M1	$18 \div 0.15$ oe or $6 + 18 + a + b$ where $a + b = 96$	
		A1	cao	

Paper: 1MA1/3H				
Question	Answer	Mark	Mark scheme	Additional guidance
20 Q26	$1 - \left(\frac{1}{2}\right)^n - \left(\frac{1}{2}\right)^n$	M1 A1	for $\left(\frac{1}{2}\right)^n$ oe oe eg $1 - \left(\frac{1}{2}\right)^{n-1}$	

Paper: 1MA1/1H				
Question	Answer	Mark	Mark scheme	Additional guidance
Q27	21	P1	for a relevant probability, eg $P(\text{green}) = \frac{x}{2x+3}$ or $P(\text{blue}) = \frac{x+3}{2x+3}$	the number of green and blue pens could be $x - 3$ and x or equivalent probabilities must be in an algebraic form in a single variable This is an exception using replacements. No further credit is available
		P1	for a relevant product, eg. " $\frac{x}{2x+3}$ " \times " $\frac{x-1}{2x+2}$ " or " $\frac{x+3}{2x+3}$ " \times " $\frac{x+2}{2x+2}$ " OR $\left(\frac{x}{x+3}\right)^2 + \left(\frac{x+3}{2x+3}\right)^2 = \frac{27}{75}$	
		P1	forms an appropriate equation, eg. " $\frac{x}{2x+3} \times \frac{x-1}{2x+2}$ " + " $\frac{x+3}{2x+3} \times \frac{x+2}{2x+2}$ " = $\frac{27}{55}$	
		P1	(dep P3) process to reduce equation to $ax^2 + bx + c = 0$ eg. $x^2 - 25x + 84 = 0$	
		P1	process to solve quadratic equation eg. $(x - 21)(x - 4) = 0$	
		A1	cao	

Paper: 1MA1/2H				
Question	Answer	Mark	Mark scheme	Additional guidance
16 (a)	0.455	M1	for $0.65 \times (1 - 0.65)$ or 0.65×0.35 ($=0.2275$ or $\frac{91}{400}$) or 2×0.2275 oe	Could be shown on a tree diagram but must show an intention to multiply
Q28	42	A1	oe	Acceptable equivalents are 45.5% or $\frac{91}{200}$ oe
		M1	for a start of the process eg $78 \div 0.65$ ($= 120$) or 78×0.35 ($=27.3$)	$\frac{78 \times 0.35}{0.65}$, $\frac{78}{0.65} - 78$
(b)		A1	cao	

Paper: 1MA1/2H				
Question	Answer	Mark	Mark scheme	Additional guidance
16	$\frac{52}{72}$	P1	for $\frac{4}{9} \times \frac{3}{8} \left(\frac{12}{72} \right)$ or $\frac{4}{9} \times \frac{5}{8}$ or $\frac{5}{9} \times \frac{4}{8} \left(\frac{20}{72} \right)$	
Q29		P1	for $1 - \left(\frac{5}{9} \times \frac{4}{8} \right)$ or $\frac{4}{9} \times \frac{3}{8} + \frac{4}{9} \times \frac{5}{8} + \frac{5}{9} \times \frac{4}{8}$ oe	
		A1	for $\frac{52}{72}$, $\frac{13}{18}$ oe SC B1 for answer of $\frac{56}{81}$ (replacement)	Accept equivalent fractions, decimals (0.72...) or percentages (72.22.....%)

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Question	Answer	Mark	Mark scheme	Additional guidance
11	0.1709	M1	for one product, $0.07 \times 0.98 (=0.0686)$ or $0.93 \times 0.11 (=0.1023)$ or $0.07 \times 0.02 (=0.0014)$ or $0.93 \times 0.89 (= 0.8277)$	If all products shown, award this mark
Q30		M1	for a fully correct method, eg $0.07 \times 0.98 + 0.93 \times 0.11$ or $1 - (0.07 \times 0.02) - (0.93 \times 0.89)$	
		A1	oe	

Paper: 1MA1/3H				
Question	Answer	Mark	Mark scheme	Additional guidance
21 Q31	$\frac{1}{81}$	M1 A1	for finding the probability of heads eg $\sqrt[4]{\frac{16}{81}}$ ($=\frac{2}{3}$) or for finding the probability of tails $1 - \sqrt[4]{\frac{16}{81}}$ ($=\frac{1}{3}$) oe	Seeing a probability of $\frac{2}{3}$ or $\frac{1}{3}$ is enough for this mark

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Question	Answer	Mark	Mark scheme	Additional guidance
10 (a)	$\frac{1}{16}$	M1	for method to find probability of getting a score of 5, eg $\frac{10}{6+8+9+7+10} (= \frac{10}{40})$ oe	Accept any equivalent fraction, decimal form 0.06(25) or 0.063, percentage form 6(.25)% or 6.3% Ignore subsequent incorrect attempts to write the correct answer in a different form.
Q32		A1	for $\frac{1}{16}$ oe	
(b)	15	M1	for method to find the proportion of 1s, eg $\frac{6}{40}$ oe	
		A1	cao	

Paper: 1MA1/1H				
Question	Answer	Mark	Mark scheme	Additional guidance
Q33	$\frac{62}{110}$	P1	for process to find a probability of 2 cards of different colours, eg $\frac{3}{11} \times \frac{7}{10}$ or $\frac{3}{11} \times \frac{1}{10}$ or $\frac{7}{11} \times \frac{3}{10}$ or $\frac{7}{11} \times \frac{1}{10}$ or $\frac{1}{11} \times \frac{3}{10}$ or $\frac{1}{11} \times \frac{7}{10}$ oe or $\frac{3}{11} \times \frac{8}{10}$ oe or $\frac{7}{11} \times \frac{4}{10}$ oe or $\frac{1}{11} \times \frac{10}{10}$ oe	May see fraction with denominator 110 Accept equivalent fraction, decimal form 0.56(36...) or percentage form 56(.36...)%
		P1	for a complete process, eg $\frac{3}{11} \times \frac{7}{10} + \frac{3}{11} \times \frac{1}{10} + \frac{7}{11} \times \frac{3}{10} + \frac{7}{11} \times \frac{1}{10} + \frac{1}{11} \times \frac{3}{10} + \frac{1}{11} \times \frac{7}{10}$ oe or $\frac{3}{11} \times \frac{8}{10} + \frac{7}{11} \times \frac{4}{10} + \frac{1}{11} \times \frac{10}{10}$ oe	
		A1	for $\frac{62}{110}$ oe OR	
		P1	for process to find a probability of 2 cards of the same colour, eg $\frac{3}{11} \times \frac{2}{10}$ or $\frac{7}{11} \times \frac{6}{10}$ or $\frac{1}{11} \times \frac{0}{10}$ oe	
		P1	for a complete process, eg $1 - \frac{3}{11} \times \frac{2}{10} - \frac{7}{11} \times \frac{6}{10}$ ($-\frac{1}{11} \times \frac{0}{10}$) oe	
		A1	for $\frac{62}{110}$ oe SC B1 for answer of $\frac{62}{121}$ (replacement)	

Paper: 1MA1/3H				
Question	Answer	Mark	Mark scheme	Additional guidance
6 (a)	0.7	B1	for 0.7 on the first branch	Accept equivalent fractions or percentages for probabilities
Q34	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: 1MA1/3H				
Question	Answer	Mark	Mark scheme	Additional guidance
19	16	P1	for $\text{Prob}(\text{R or G}) = 1 - 0.4 (= 0.6)$ or for (number of red or green counters) = $50 - 0.4 \times 50 (= 30)$ or for use of ratio, eg [probability] $\times \frac{8}{15}$ (= 0.32) or [number of counters] $\times \frac{8}{15}$	[probability] may be 0.4 or 0.6 [number of counters] may be 20 or 50
Q35		P1	for a complete process to find number of green counters, eg $(1 - 0.4) \times \frac{8}{15} \times 50$ or for $\frac{16}{50}$	
		A1	cao	

Paper: 1MA1/1H				
Question	Answer	Mark	Mark scheme	Additional guidance
16	0.78	P1	for using 0.75 or 0.25 in a relevant product, eg $0.75 \times x$ or $0.25 \times y$	Allow different letters Could work with fractions
Q36		P1	for using two products to form an equation, eg $0.75x + 0.25y = 0.36$	
		P1	for a correct equation in one variable, eg $0.75(1 - p) + 0.25p = 0.36$ or $0.75f + 0.25(1 - f) = 0.36$	Could set up an equation for pass \times pass + fail \times fail = 0.64
		A1	oe	Accept 78% or any equivalent fraction, eg $\frac{39}{50}$, $\frac{156}{200}$

