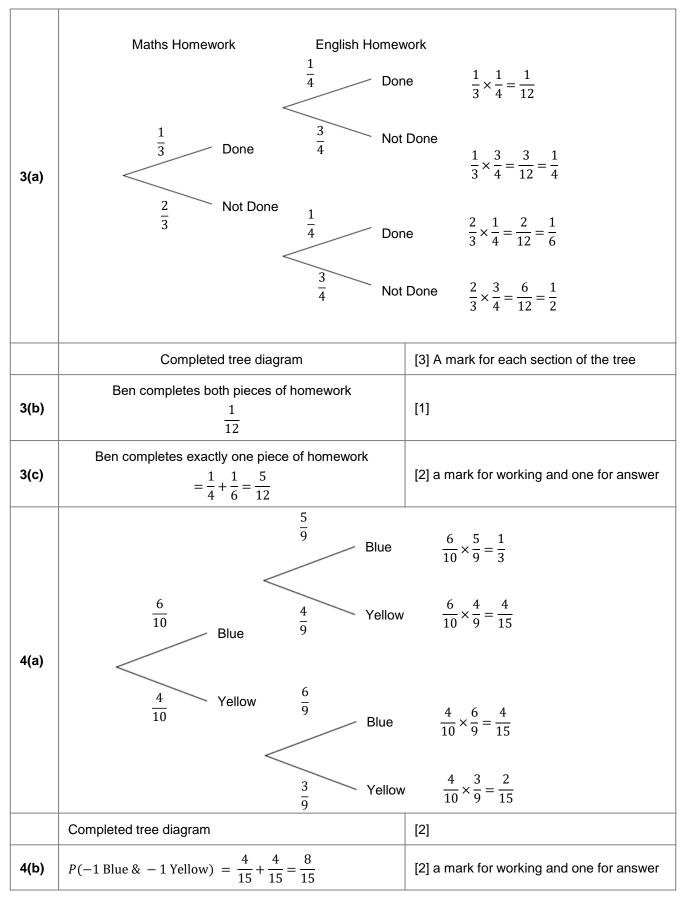


Turn over 🕨

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5(a)	$\frac{5}{11}$ Red Ball $\frac{6}{10}$ Green Ball $\frac{5}{10}$ Red I	Ball $\frac{5}{11} \times \frac{4}{10} = \frac{20}{110}$ In Ball $\frac{5}{11} \times \frac{6}{10} = \frac{30}{110}$ Ball $\frac{6}{11} \times \frac{5}{10} = \frac{30}{110}$ In Ball $\frac{6}{11} \times \frac{5}{10} = \frac{30}{110}$
	Completed tree diagram	[3]
5(b)	One red and one green ball are drawn = $\frac{30}{110} + \frac{30}{110} = \frac{60}{110} = \frac{6}{11}$	[2] a mark for working and one for answer
5(c)	Using answer from part (b), P(same colour) = 1 - P(different colour) P(same colour) = $1 - \frac{6}{11} = \frac{5}{11}$	[1] Allow calculation of P(both red) and P(both green) and use of 'or rule'[1] Correct final answer
6	Probability of blue ball first: 8 blue balls and x balls in total $\frac{8}{x}$ Probability of choosing a green ball after a ball isn't replaced: 3 green balls $x - 1$ balls left in the bag. $\frac{3}{x}$ Probabilities are independent, so multiply to find the probability of both happening, which is equal to $\frac{1}{10}$. $\frac{8}{x} \times \frac{3}{x-1} = \frac{1}{10}$ $\frac{24}{x(x-1)} = \frac{1}{10}$ $\frac{240 = x(x-1)}{240 = x^2 - x}$ $x^2 - x - 240 = 0$ $(x - 16)(x + 15) = 0$ $x = 16 \text{ or } x = -15$ Can't have a negative number of balls in a bag, so there are 16 in total.	 [1] Blue and green probabilities given in algebra form. [1] Setting up of equation [1] Correct manipulation into quadratic form [1] Factorising [1] Correct answer

END