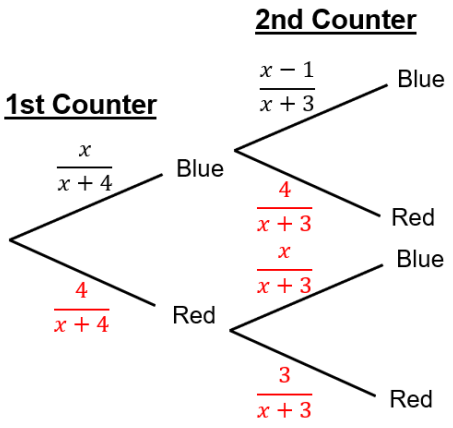
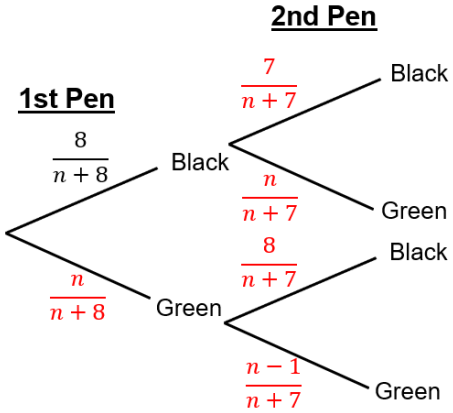
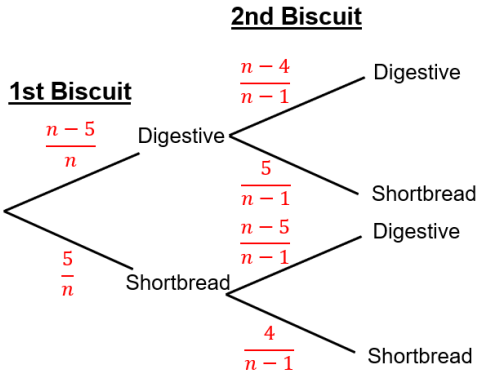
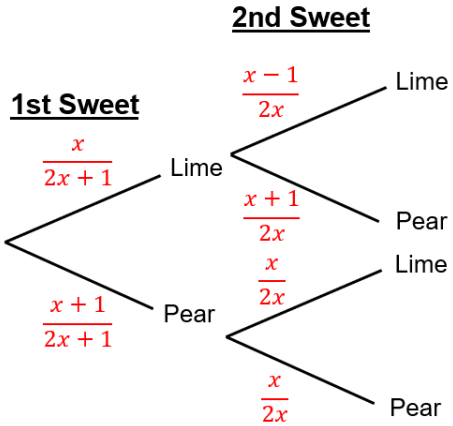
Fill in the Blanks — Tree Diagrams for Dependent Events

Question	Tree Diagram	Probability
There are x blue counters and 4 red counters in a bag. Two counters are chosen at random without replacement. Complete the tree diagram and find expressions for each of the probabilities.		$P(BB) = \frac{x}{x+4} \times \frac{x-1}{x+3}$ $P(BR) = \frac{x}{x+4} \times \frac{4}{x+3}$ $P(RB) = \frac{4}{x+4} \times \frac{x}{x+3}$ $P(RR) = \frac{4}{x+4} \times \frac{3}{x+3}$
There are 8 black pens and n green pens in a pencil case. Gloria chooses two pens at random from the pencil case. Complete the tree diagram and find expressions for each of the probabilities.		$P(BB) = \frac{8}{n+8} \times \frac{7}{n+7}$ $P(BG) = \frac{8}{n+8} \times \frac{n}{n+7}$ $P(GB) = \frac{n}{n+8} \times \frac{8}{n+7}$ $P(GG) = \frac{n}{n+8} \times \frac{n-1}{n+7}$
There are n biscuits in a tin. There are some digestives and five shortbreads. Ayyan takes two biscuits from the tin at random and eats them. Draw a tree diagram and find expressions for each of the probabilities.		$P(DD) = \frac{n-5}{n} \times \frac{n-4}{n-1}$ $P(DS) = \frac{n-5}{n} \times \frac{5}{n-1}$ $P(SD) = \frac{5}{n} \times \frac{n-5}{n-1}$ $P(SS) = \frac{5}{n} \times \frac{4}{n-1}$
A jar contains x lime sweets and some pear sweets. The number of pear sweets is one more than the number of lime sweets. Two sweets are chosen at random. Draw a tree diagram and find expressions for each of the probabilities.		$P(LL) = \frac{x}{2x+1} \times \frac{x-1}{2x}$ $P(LP) = \frac{x}{2x+1} \times \frac{x+1}{2x}$ $P(PL) = \frac{x+1}{2x+1} \times \frac{x}{2x}$ $P(PP) = \frac{x+1}{2x+1} \times \frac{x}{2x}$