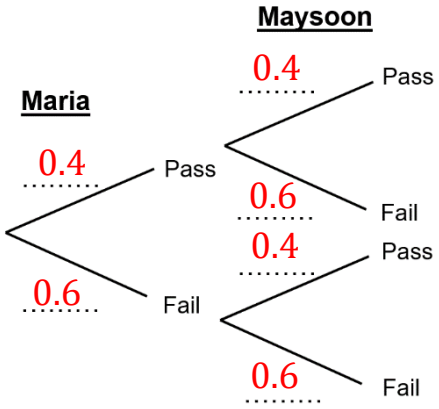
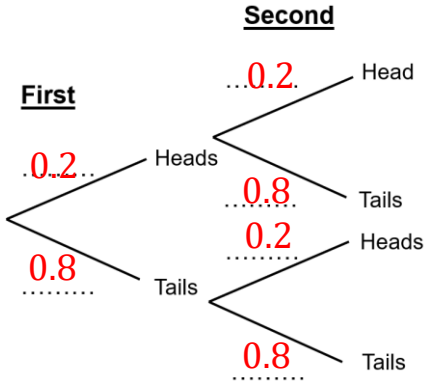
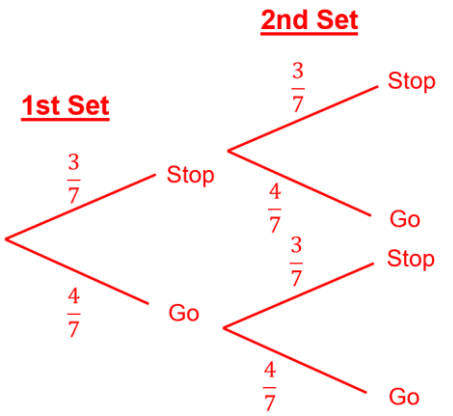
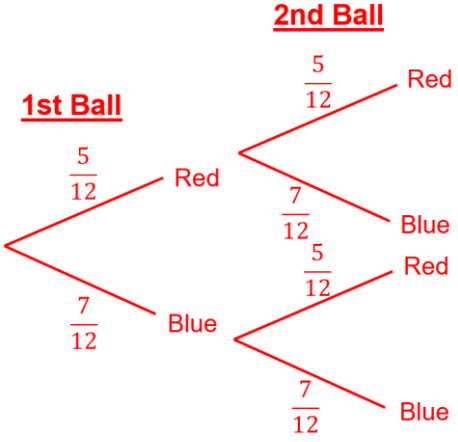
# Fill in the Blanks — Tree Diagrams for Independent Events

| Question | Tree Diagram | Probability | |
|---|---|---|---|
| Two students, Maria and Maysoon each sit their driving theory exam. Complete the tree diagram and calculate the probability of each outcome. |  | $P(PP) = 0.4 \times 0.4 =$ | $0.16$ |
| | | $P(PF) = 0.4 \times 0.6 =$ | $0.24$ |
| | | $P(FP) = 0.6 \times 0.4 =$ | $0.24$ |
| | | $P(FF) = 0.6 \times 0.6 =$ | $0.36$ |
| A biased coin is tossed once and then tossed again for a second time. Complete the tree diagram and calculate the probability of each outcome. |  | $P(HH) = 0.2 \times 0.2 =$ | $0.04$ |
| | | $P(HT) = 0.2 \times 0.8 =$ | $0.16$ |
| | | $P(TH) = 0.8 \times 0.2 =$ | $0.16$ |
| | | $P(TT) = 0.8 \times 0.8 =$ | $0.64$ |
| A car travels through two sets of traffic lights. The probability of stopping at each set is the same. Complete the tree diagram and calculate the probability of each outcome. |  | $P(SS) = \frac{3}{7} \times \frac{3}{7} =$ | $\frac{9}{49}$ |
| | | $P(SG) = \frac{3}{7} \times \frac{4}{7} =$ | $\frac{12}{49}$ |
| | | $P(GS) = \frac{4}{7} \times \frac{3}{7} =$ | $\frac{12}{49}$ |
| | | $P(GG) = \frac{4}{7} \times \frac{4}{7} =$ | $\frac{16}{49}$ |
| There are 12 red or blue balls in a box. There are more blue balls than red balls. A ball is removed at random, the colour recorded, then replaced. A second ball is then removed. Complete the tree diagram and probabilities. |  | $P(RR) = \frac{5}{12} \times \frac{5}{12} =$ | $\frac{25}{144}$ |
| | | $P(RB) = \frac{5}{12} \times \frac{7}{12} =$ | $\frac{35}{144}$ |
| | | $P(BR) = \frac{7}{12} \times \frac{5}{12} =$ | $\frac{35}{144}$ |
| | | $P(BB) = \frac{7}{12} \times \frac{7}{12} =$ | $\frac{49}{144}$ |