5.4) Tree diagrams

Worked example	Your turn
There are three red and nine yellow counters in a bag. A counter is taken from the bag at random and not replaced. A second counter is then taken from the bag. Determine the probability that: a) Both counters are green. b) The counters are different colours.	There are seven green and five blue beads in a bag. A bead is taken from the bag at random and not replaced. A second bead is then taken from the bag. Determine the probability that: a) Both beads are green. b) The beads are different colours. a) $\dfrac{7}{22}$ b) $\dfrac{35}{66}$

Worked example	Your turn
There are 5 blue and 4 red beads in a bag. I take two beads at random. Determine the probability that: a) They are of the same colour. b) They are of different colours.	There are 3 yellow and 2 green counters in a bag. I take two counters at random. Determine the probability that: a) They are of the same colour. b) They are of different colours. a) $\dfrac{2}{5}$ b) $\dfrac{3}{5}$

Worked example	Your turn
A bag contains 15 tokens, 3 coloured blue, 5 coloured red and 7 coloured yellow. Three tokens are drawn from the bag without replacement. Find the probability that the third token is yellow, given that the first two are yellow.	A bag contains 14 tokens, 4 coloured purple, 7 coloured orange and 3 coloured green. Three tokens are drawn from the bag without replacement. Find the probability that the third token is purple, given that the first two are purple. $$\frac{2}{12} = \frac{1}{6}$$

Worked example	Your turn
A bag contains 15 tokens, 3 coloured blue, 5 coloured red and 7 coloured yellow. Three tokens are drawn from the bag without replacement. Find the probability that all three tokens are different colours.	A bag contains 14 tokens, 4 coloured purple, 7 coloured orange and 3 coloured green. Three tokens are drawn from the bag without replacement. Find the probability that all three tokens are different colours. $$\frac{3}{13}$$

Worked example	Your turn
The probability I hit a target on each shot is 0.4. I keep firing until I hit the target. Determine the probability I hit the target on the 6th shot.	The probability I hit a target on each shot is 0.3. I keep firing until I hit the target. Determine the probability I hit the target on the 5th shot. 0.07203