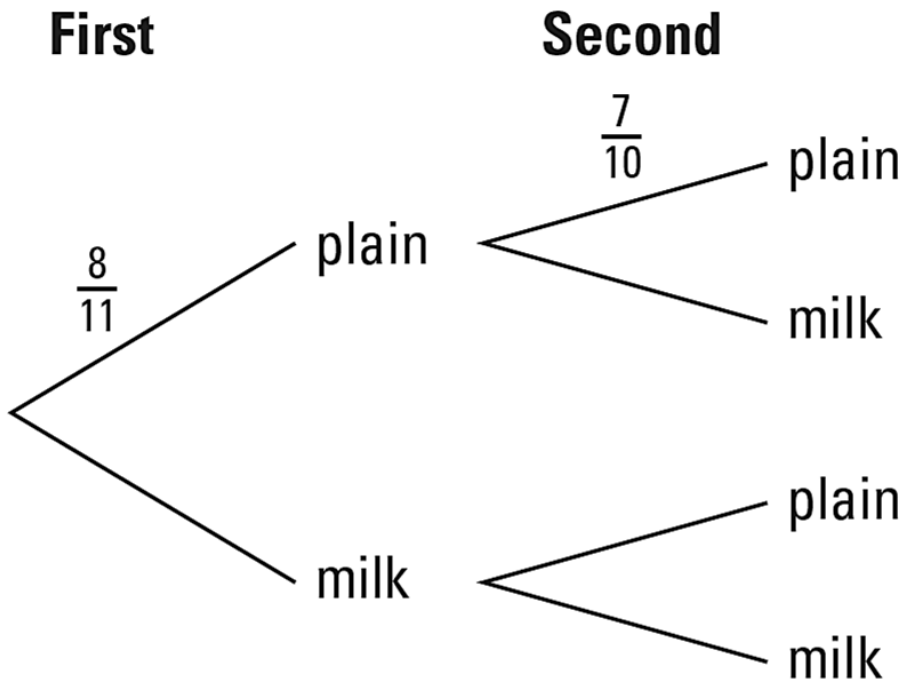
Conditional probability

1. A box of chocolates contain 8 plain chocolates and 3 milk chocolates.
   A chocolate is taken at random from the box and eaten.
   A second chocolate is now taken at random from the box.

   a) Complete the probability tree diagram shown below.



   b) Work out the probability that the chocolates will both be plain.

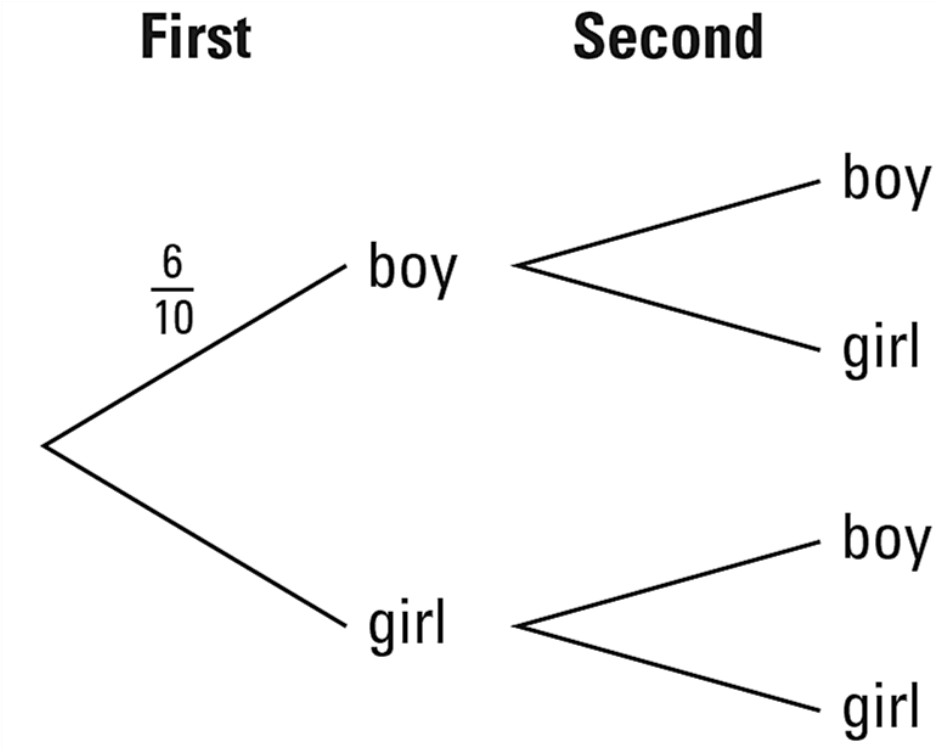
   c) Work out the probability that the chocolates will be the same type of chocolate.

   d) Work out the probability that the chocolates will be one of each type of chocolate.

Conditional probability

2. 6 boys and 4 girls want to represent the school at a local council function.
Two of these students are picked at random.

a) Complete the probability tree diagram shown below.



b) Work out the probability of picking 2 girls.

c) Work out the probability of picking 1 girl.

d) Work out the probability of picking at least one boy.

Conditional probability

3. Anya travels to work by car or by bicycle.
The probability that she travels by car is 0.35
If she travels to work by car, the probability that she will be late is 0.12
If she travels to work by bicycle, the probability that she will be late is 0.25

a) Draw a probability tree diagram to show all the possible outcomes.

b) Work out the probability that Anya will not be late.

Conditional probability

4. A bag contains three red counters and two white counters.
Three counters are taken at random from the bag without replacement.

a) Draw a probability tree diagram to show all the possible outcomes.

b) Work out the probability that two of the three counters are red.

Conditional probability

5. A company gets parts for its machines from two suppliers, Apex and Pioneer, in the ratio 1 : 4.

   4% of the parts from Apex are faulty.
   3% of the parts from Pioneer are faulty.

   Find the probability that a part chosen at random is faulty.

Conditional probability

6. There are 20 sweets in a bag.
8 of the sweets are strawberry flavour and the rest are lemon flavour.
Three sweets are removed from the bag, one at a time. None of the sweets are replaced.

Calculate the probability that at least two of the sweets chosen are strawberry flavour.