

- 2 A fair six-sided dice with faces labelled 1, 2, 3, 4, 5, 6 is thrown repeatedly until a 6 is obtained.

- (a) Find the probability that a 6 is obtained for the first time on the 8th throw.

[1]

- (b) Find the probability that a 6 is obtained for the third time on the 7th throw.

[3]

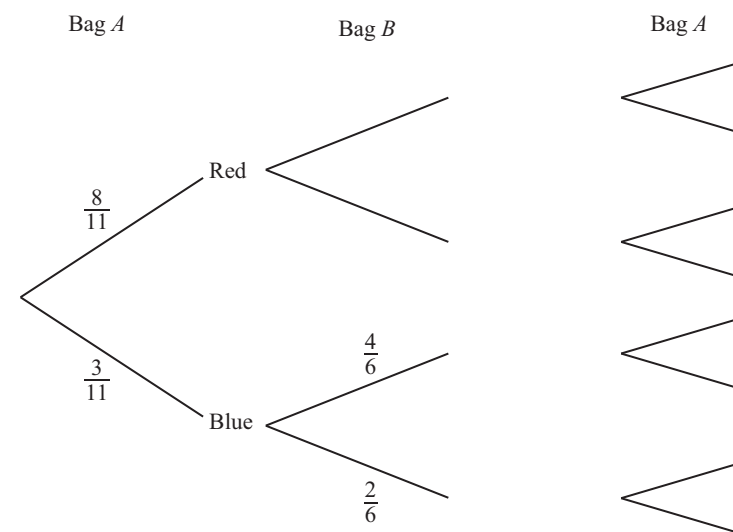
- 4 Bag A contains 8 red marbles and 3 blue marbles. Bag B contains 4 red marbles and 1 blue marble.

A marble is chosen at random from bag A . If the marble chosen is red, it is discarded. If the marble chosen is blue, it is placed in bag B .

A marble is then chosen at random from bag B . If the marble chosen is red, it is discarded. If the marble chosen is blue, it is placed in bag A .

A marble is now chosen at random from bag A .

- (a) Complete the tree diagram below by entering all the remaining outcomes and probabilities. [3]



- (b)** Find the probability that all three marbles chosen are the same colour.

[2]

- (b) Find the probability that the two cards have pictures of the same type of vehicle on them. [3]

[illegible][illegible]

.....4.....

- (a) Write down an equation in terms of x and hence find the value of x . [4]