1 The probability that an *Everbright* battery works for more than 50 hours is 0.8.
   A torch needs two working *Everbright* batteries to operate.

   (a) Two new *Everbright* batteries are put into the torch.

   Complete the tree diagram for the life of these two batteries.

First
battery

Second
battery

more than
50 hours

more than
50 hours

0.8

50 hours
or less

more than
50 hours

50 hours
or less

50 hours
or less

[2]

   (b) Calculate the probability that the torch will **not** work for more than 50 hours.

(b) _____ **[3]**

2 Emma is going to two weddings in June.
The probability that any day in June is sunny is 0.8.

(a) Complete the tree diagram.

| | First wedding day | | Second wedding day |

[2]

(b) Work out the probability that just one of the two wedding days is sunny.
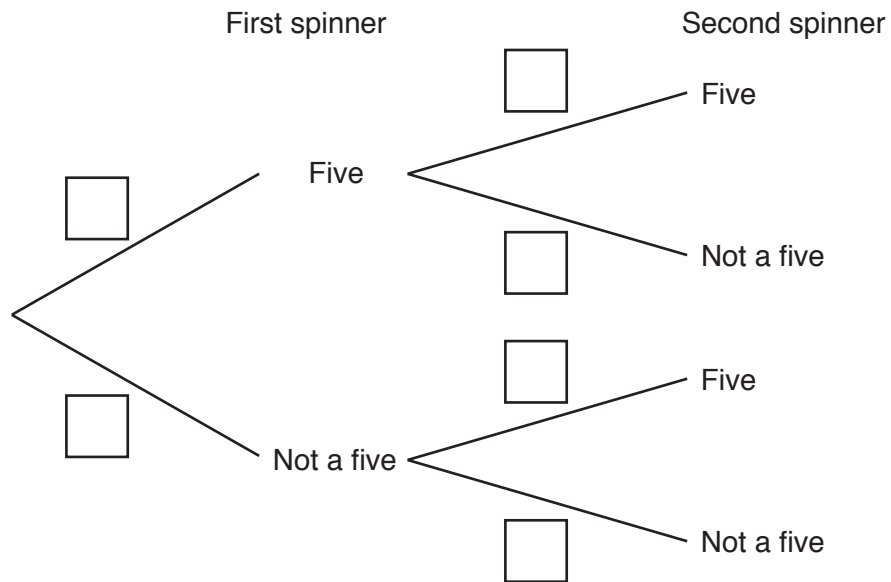
(b) _____ **[3]**

3 Ahmed is playing a game with two unbiased five-sided spinners, each numbered 1 to 5.

He spins the two spinners.

(a) Complete the tree diagram.

First spinner   Second spinner

□   □ ——— Five

                    Five ◁

                                 □ ——— Not a five

□

                                 □ ——— Five

              Not a five ◁

                                 □ ——— Not a five

[3]

(b) Ahmed needs **exactly one** of the two spinners to show 5 to win the game.

Calculate the probability that Ahmed wins the game.

(b) .... [3]

4 Jim and Fran each have a bag containing different numbers of blue, green and red counters only.
Jim chooses a counter at random from his bag and then Fran chooses a counter at random from her bag.
The probabilities of randomly choosing blue and green counters are shown in the tree diagram.

(a) Complete the tree diagram.

Jim's choice   Fran's choice

[2]
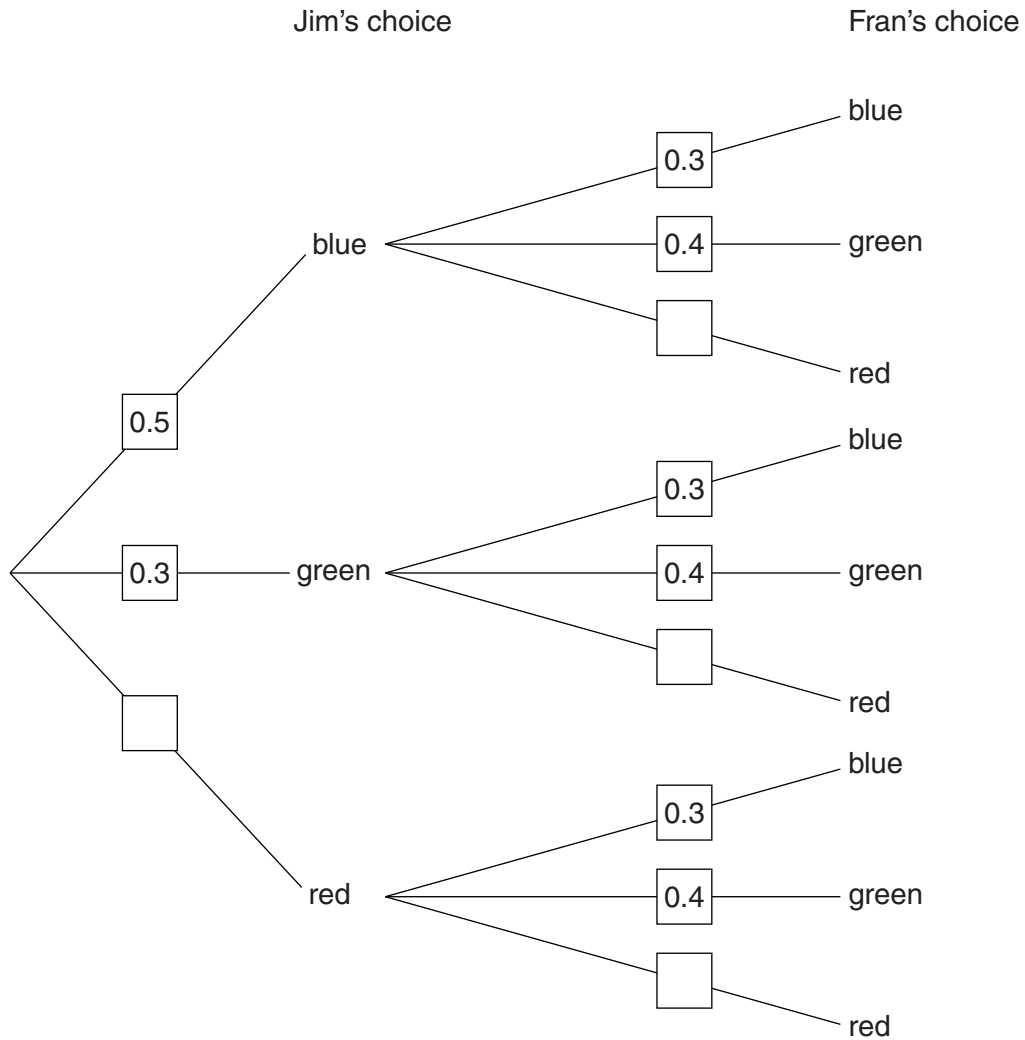
(b) Calculate the probability that one of the counters chosen is blue and the other is green.

(b) .... **[3]**

(c) Calculate the probability that the two counters chosen are **the same colour**.

(c) .... **[3]**

5 The probability that Pat gets a lift to school on any day is 0.6.

(a) Complete the tree diagram for two days.

First day   Second day

                ____ — Lift

         Lift

0.6   ____ — No lift

                ____ — Lift

____   No lift

             ____ — No lift

[2]
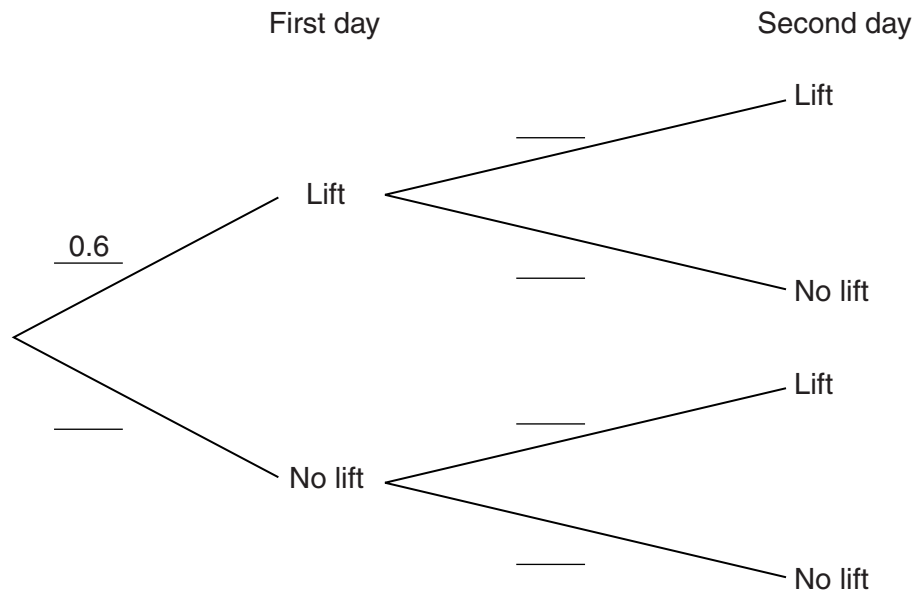
(b) Work out the probability that Pat gets a lift on just one of the two days.

(b) _____ **[3]**