



ACHIEVE ACADEMY

GCSE Maths — Foundation Tier

Tree Diagrams · Practice Booklet

NAME: _____

CLASS: _____

DATE: _____

☒ Developing

☒ Secure

☒ Greater Depth

Answer every question in the working space provided. Method marks are available for correct working even if the final answer is wrong. Check the time allowed with your tutor before you start.

Tree Diagrams

Total marks available: 83

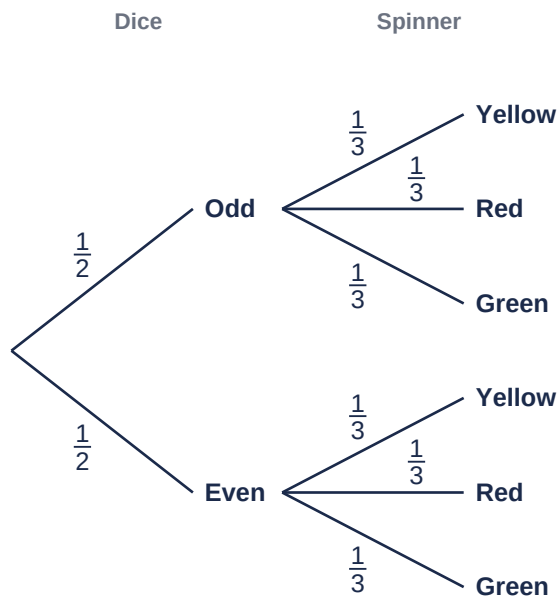
Tree Diagrams

Q1

[2 marks]

In a game, a fair dice is rolled (odd or even) and then a fair three-colour spinner is spun. The tree diagram shows the possible results.

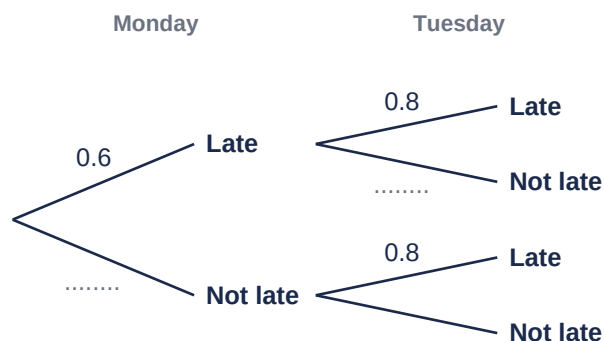
- (a) List all the possible outcomes.
(b) How many possible outcomes are there?



Q2

[2 marks]

The probability that the bus is late on Monday is 0.6. The probability that the bus is late on Tuesday is 0.8. The two events are independent. Complete the probability tree diagram.

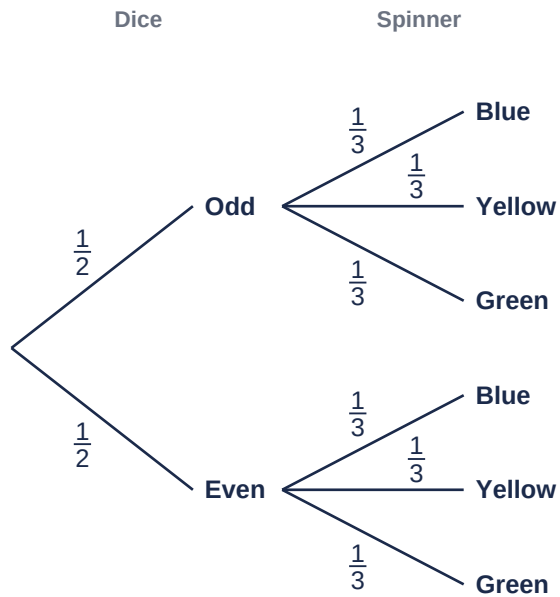


Q3

[2 marks]

In a game, a fair dice is rolled (odd or even) and then a fair three-colour spinner is spun. The tree diagram shows the possible results.

- (a) List all the possible outcomes.
(b) How many possible outcomes are there?



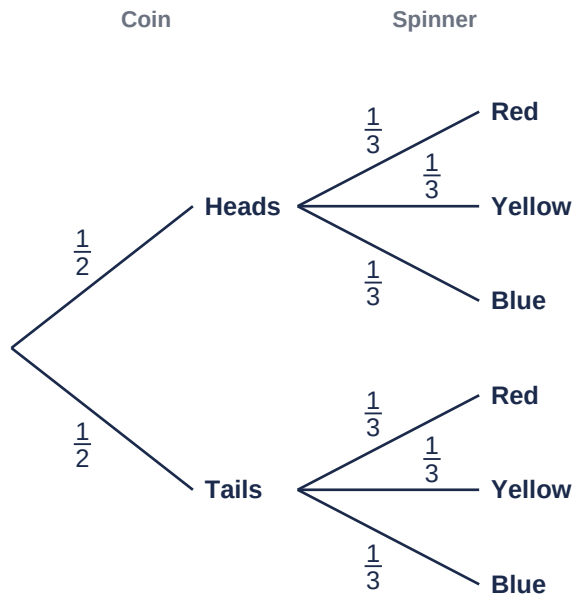
Q4

[2 marks]

In a game, a fair coin is thrown and then a fair three-colour spinner is spun. The tree diagram shows the possible results.

(a) List all the possible outcomes.

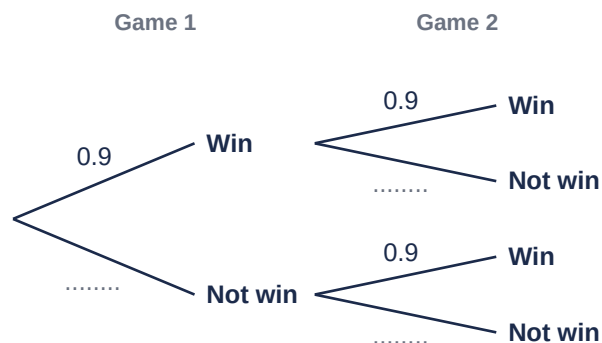
(b) How many possible outcomes are there?



Q5

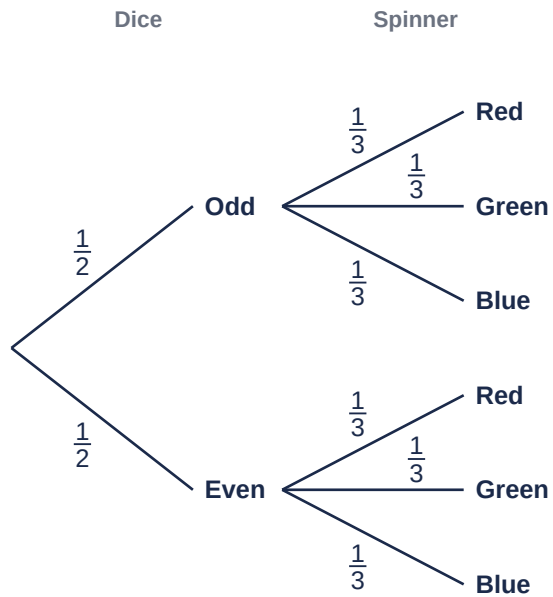
[2 marks]

The probability that the team wins game 1 is 0.9. The probability that the team wins game 2 is 0.9. The two events are independent. Complete the probability tree diagram.



In a game, a fair dice is rolled (odd or even) and then a fair three-colour spinner is spun. The tree diagram shows the possible results.

- (a) List all the possible outcomes.
(b) How many possible outcomes are there?



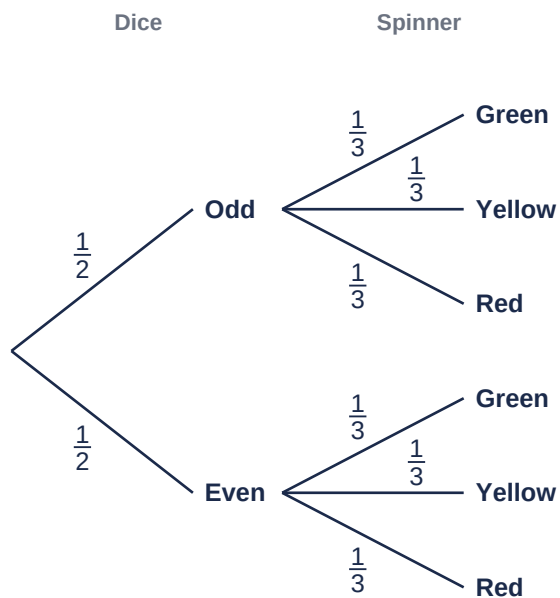
Q7

[2 marks]

In a game, a fair dice is rolled (odd or even) and then a fair three-colour spinner is spun. The tree diagram shows the possible results.

(a) List all the possible outcomes.

(b) How many possible outcomes are there?

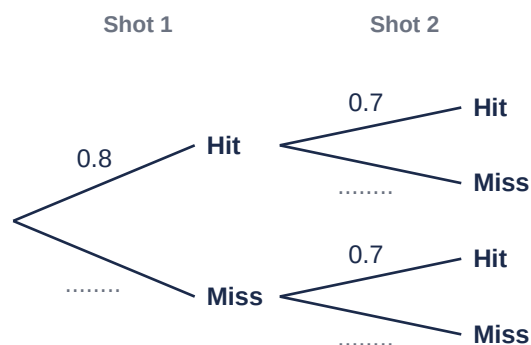


Q8

[2 marks]

The probability that Jo hits the target with shot 1 is 0.8. The probability that Jo hits the target with shot 2 is 0.7. The two events are independent.

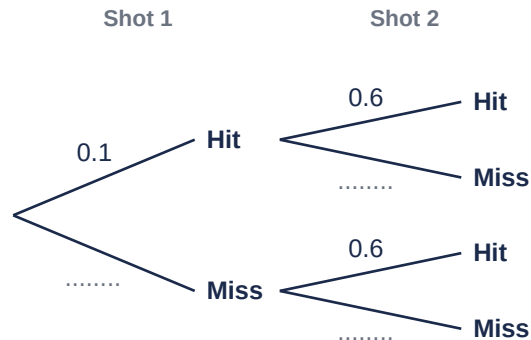
Complete the probability tree diagram.



Q9

[2 marks]

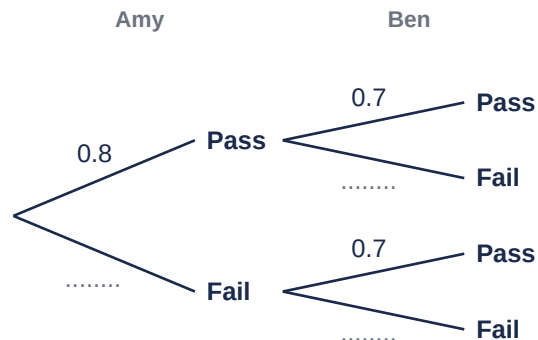
The probability that Jo hits the target with shot 1 is 0.1. The probability that Jo hits the target with shot 2 is 0.6. The two events are independent.
Complete the probability tree diagram.



Q10

[2 marks]

The probability that Amy passes the driving test is 0.8. The probability that Ben passes the driving test is 0.7. The two events are independent.
Complete the probability tree diagram.

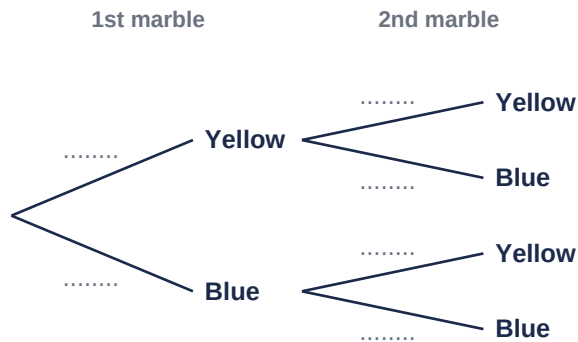


Q11

[4 marks]

A bag contains 6 yellow marbles and 5 blue marbles. A marble is taken at random, its colour is recorded and it is put back. A second marble is then taken at random.

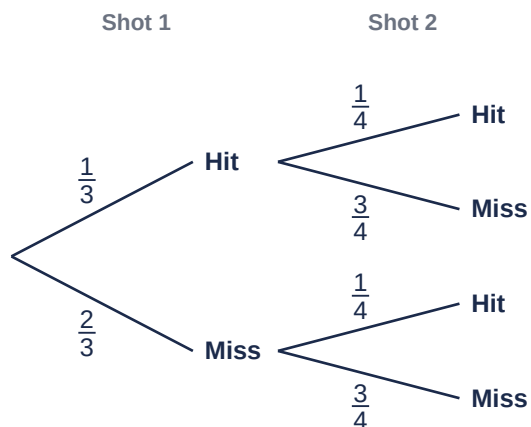
- (a) Complete the probability tree diagram.
 (b) Work out the probability that both marbles are yellow.



Q12

[2 marks]

The tree diagram shows the probabilities for Shot 1 and Shot 2. The events are independent. Work out the probability that Jo hits the target with shot 1 and Jo hits the target with shot 2.

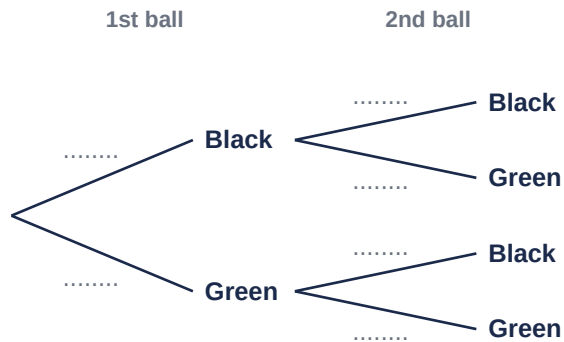


Q13

[4 marks]

A bag contains 2 black balls and 2 green balls. A ball is taken at random, its colour is recorded and it is put back. A second ball is then taken at random.

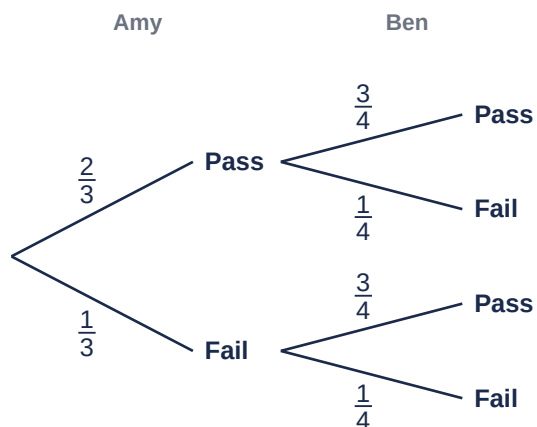
- (a) Complete the probability tree diagram.
 (b) Work out the probability that both balls are green.



Q14

[2 marks]

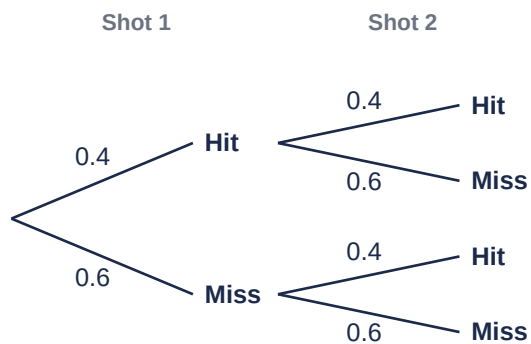
The tree diagram shows the probabilities for Amy and Ben. The events are independent. Work out the probability that Amy fails and Ben passes.



Q15

[2 marks]

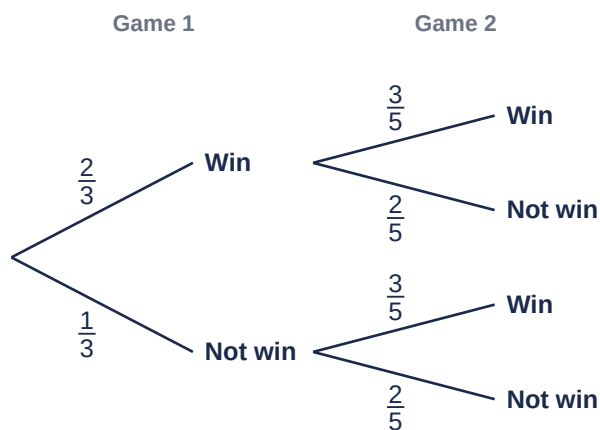
The tree diagram shows the probabilities for Shot 1 and Shot 2. The events are independent. Work out the probability that Jo hits the target with shot 1 and Jo misses with shot 2.



Q16

[2 marks]

The tree diagram shows the probabilities for Game 1 and Game 2. The events are independent. Work out the probability that the team does not win game 1 and the team does not win game 2.

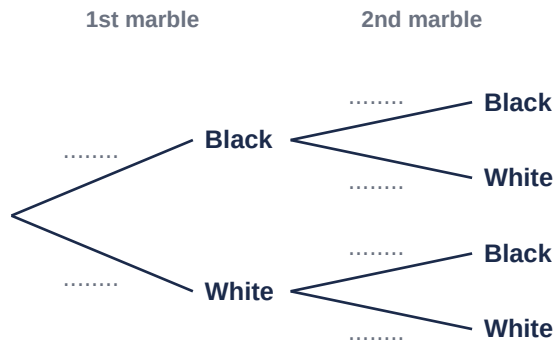


Q17

[4 marks]

A bag contains 2 black marbles and 4 white marbles. A marble is taken at random, its colour is recorded and it is put back. A second marble is then taken at random.

- (a) Complete the probability tree diagram.
 (b) Work out the probability that both marbles are black.

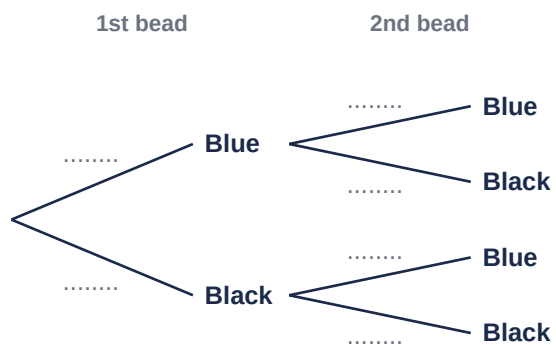


Q18

[4 marks]

A bag contains 4 blue beads and 7 black beads. A bead is taken at random, its colour is recorded and it is put back. A second bead is then taken at random.

- (a) Complete the probability tree diagram.
 (b) Work out the probability that both beads are black.

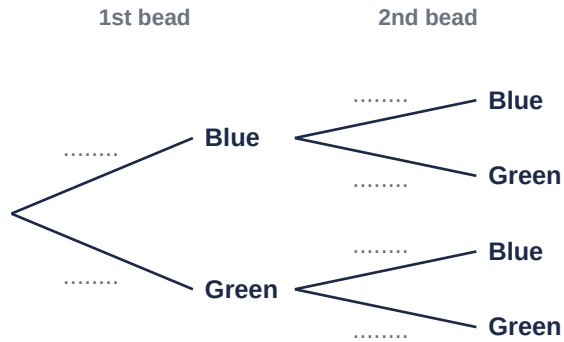


Q19

[4 marks]

A bag contains 3 blue beads and 7 green beads. A bead is taken at random, its colour is recorded and it is put back. A second bead is then taken at random.

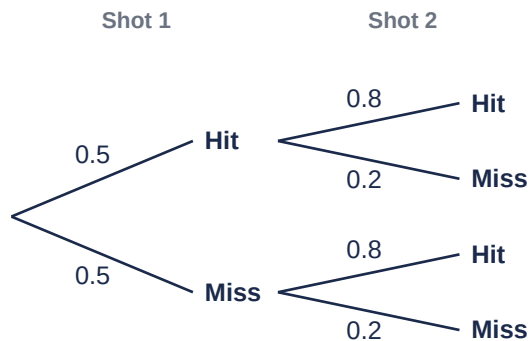
- (a) Complete the probability tree diagram.
 (b) Work out the probability that both beads are blue.



Q20

[2 marks]

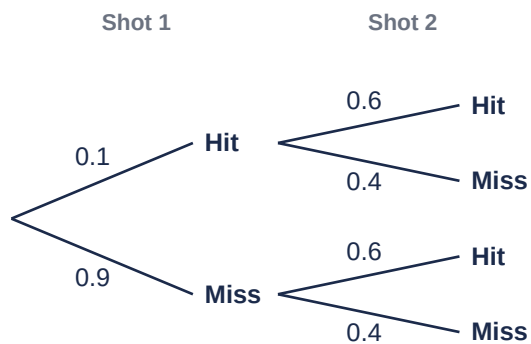
The tree diagram shows the probabilities for Shot 1 and Shot 2. The events are independent. Work out the probability that Jo hits the target with shot 1 and Jo misses with shot 2.



Q21

[3 marks]

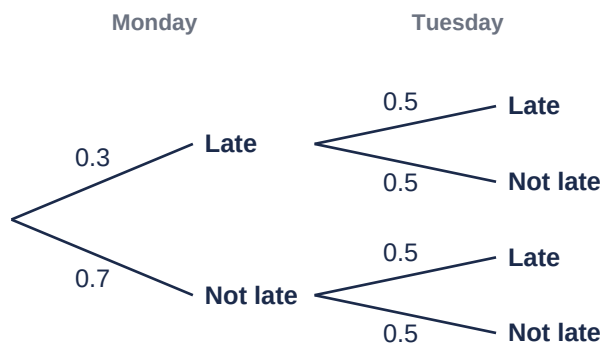
The tree diagram shows the probabilities for Shot 1 and Shot 2. The events are independent. Work out the probability that Jo hits the target with exactly one of the two shots.



Q22

[3 marks]

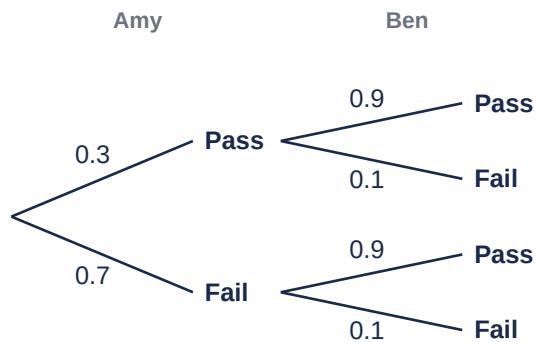
The tree diagram shows the probabilities for Monday and Tuesday. The events are independent. Work out the probability that the bus is late on at least one of the two days.



Q23

[3 marks]

The tree diagram shows the probabilities for Amy and Ben. The events are independent. Work out the probability that at least one of them passes.



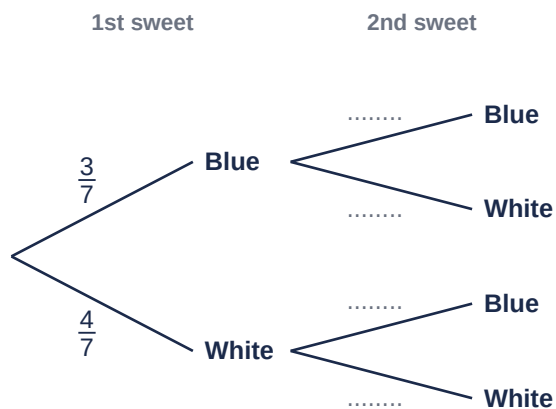
Q24

[4 marks]

A bag contains 3 blue sweets and 4 white sweets. Sam takes a sweet at random, records its colour and puts it back. He then takes a second sweet at random.

(a) Complete the probability tree diagram.

(b) Work out the probability that the two sweets are different colours.



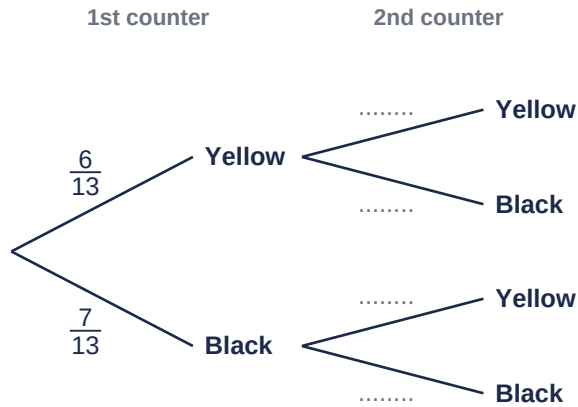
Q25

[4 marks]

A bag contains 6 yellow counters and 7 black counters. Sam takes a counter at random, records its colour and puts it back. He then takes a second counter at random.

(a) Complete the probability tree diagram.

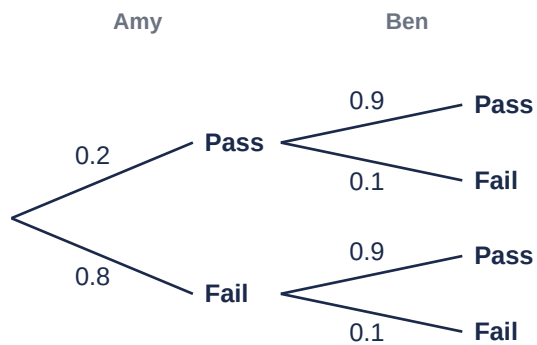
(b) Work out the probability that the two counters are different colours.



Q26

[3 marks]

The tree diagram shows the probabilities for Amy and Ben. The events are independent. Work out the probability that at least one of them passes.



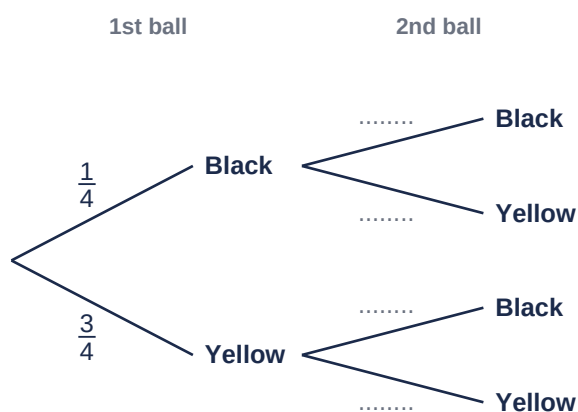
Q27

[4 marks]

A bag contains 2 black balls and 6 yellow balls. Sam takes a ball at random, records its colour and puts it back. He then takes a second ball at random.

(a) Complete the probability tree diagram.

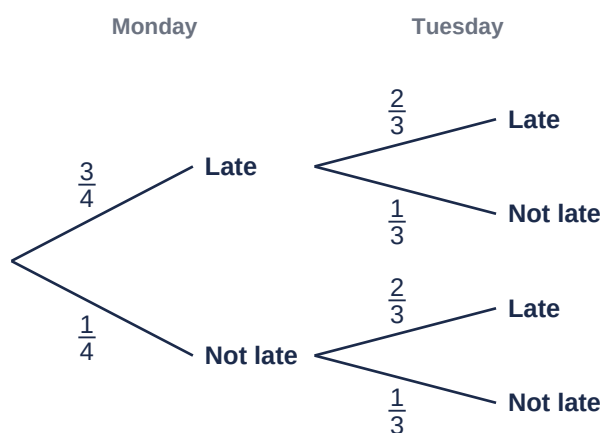
(b) Work out the probability that the two balls are different colours.



Q28

[3 marks]

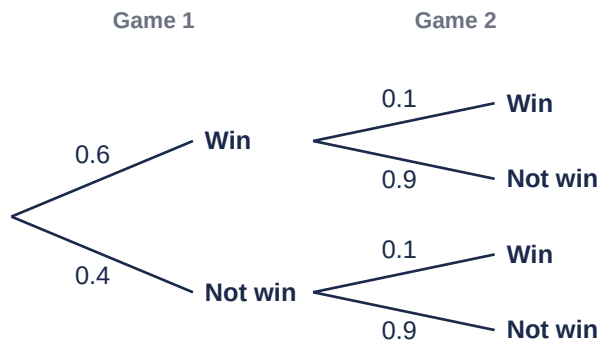
The tree diagram shows the probabilities for Monday and Tuesday. The events are independent. Work out the probability that the bus is late on exactly one of the two days.



Q29

[3 marks]

The tree diagram shows the probabilities for Game 1 and Game 2. The events are independent. Work out the probability that the team wins exactly one of the two games.



Q30

[3 marks]

The tree diagram shows the probabilities for Monday and Tuesday. The events are independent. Work out the probability that the bus is late on exactly one of the two days.

