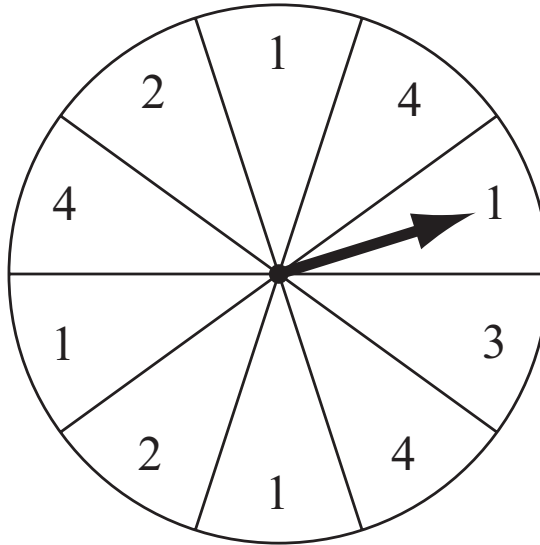


1)



The diagram shows a circular board, divided into 10 numbered sectors.

When the arrow is spun it is equally likely to stop in any sector.

(a) Complete the table below which shows the probability of the arrow stopping at each number.

Number	1	2	3	4
Probability		0.2		0.3

[1]

(b) The arrow is spun once.

Find

(i) the most likely number,

Answer(b)(i)

[1]

(ii) the probability of a number less than 4.

Answer(b)(ii)

[1]

1 continued)

(c) The arrow is spun twice.

Find the probability that

(i) both numbers are 2,

Answer(c)(i) [1]

(ii) the first number is 3 and the second number is 4,

Answer(c)(ii) [2]

(iii) the two numbers add up to 4.

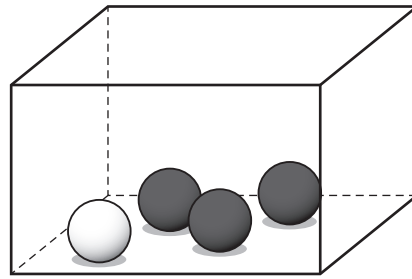
Answer(c)(iii) [3]

(d) The arrow is spun several times until it stops at a number 4.

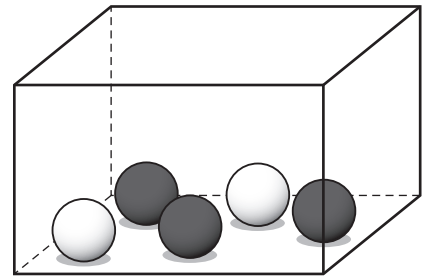
Find the probability that this happens on the third spin.

Answer(d) [2]

2)



A



B

Box A contains 3 black balls and 1 white ball.
 Box B contains 3 black balls and 2 white balls.

- (a) A ball can be chosen at random from either box.
 Complete the following statement.

There is a greater probability of choosing a white ball from Box _____ .

Explain your answer.

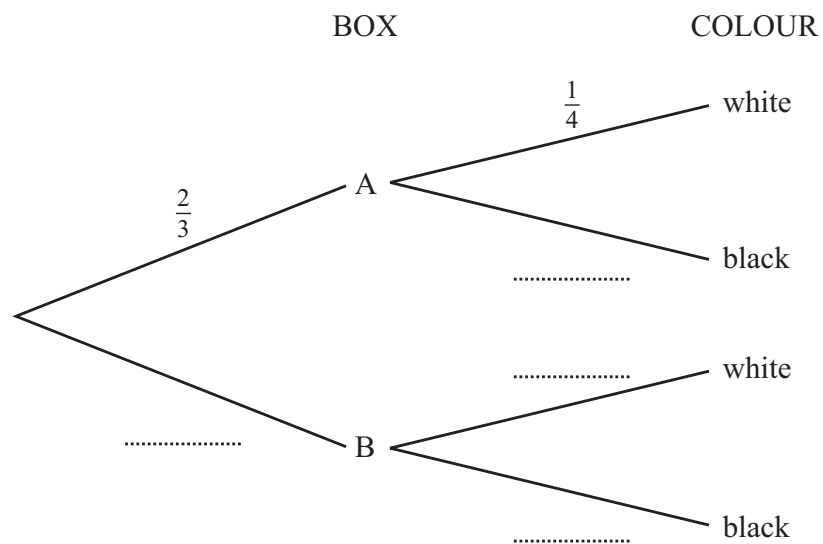
Answer(a)

[1]

- (b) Abdul chooses a box and then chooses a ball from this box at random.

The probability that he chooses box A is $\frac{2}{3}$.

- (i) Complete the tree diagram by writing the four probabilities in the empty spaces.



[4]

2 continued)

(ii) Find the probability that Abdul chooses box A and a black ball.

Answer(b)(ii) [2]

(iii) Find the probability that Abdul chooses a black ball.

Answer(b)(iii) [2]

(c) Tatiana chooses a box and then chooses **two** balls from this box at random (without replacement).

The probability that she chooses box A is $\frac{2}{3}$.

Find the probability that Tatiana chooses two white balls.

Answer(c) [2]

3)

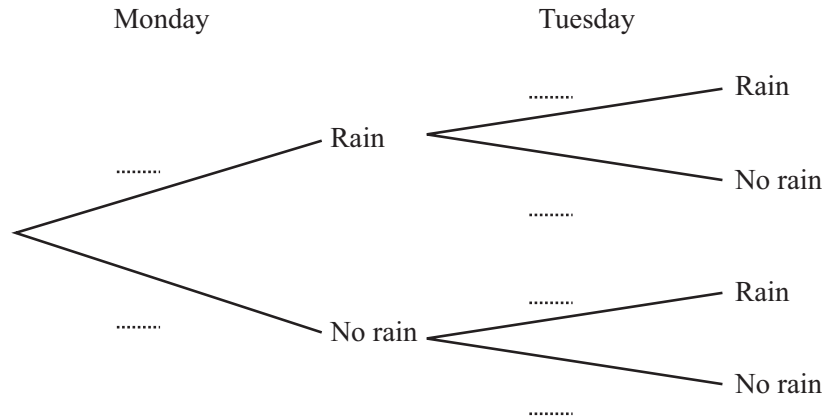
In this question give all your answers as fractions.

The probability that it rains on Monday is $\frac{3}{5}$.

If it rains on Monday, the probability that it rains on Tuesday is $\frac{4}{7}$.

If it does not rain on Monday, the probability that it rains on Tuesday is $\frac{5}{7}$.

(a) Complete the tree diagram.



[3]

(b) Find the probability that it rains

(i) on **both** days,

Answer(b)(i)

[2]

(ii) on Monday but not on Tuesday,

Answer(b)(ii)

[2]

(iii) on **only one** of the two days.

Answer(b)(iii)

[2]

(c) If it does **not** rain on Monday and it does **not** rain on Tuesday, the probability that it does **not** rain on Wednesday is $\frac{1}{4}$.

Calculate the probability that it rains on **at least one** of the three days.

Answer(c)

[3]

4)

Katrina puts some plants in her garden.

The probability that a plant will produce a flower is $\frac{7}{10}$.

If there is a flower, it can only be red, yellow or orange.

When there is a flower, the probability it is red is $\frac{2}{3}$ and the probability it is yellow is $\frac{1}{4}$.

(a) Draw a tree diagram to show **all** this information.

Label the diagram and write the probabilities on each branch.

Answer(a)

[5]

(b) A plant is chosen at random.

Find the probability that it will **not** produce a yellow flower.

Answer(b)

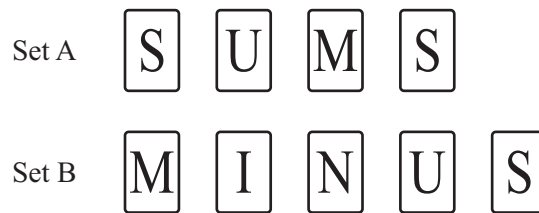
[3]

(c) If Katrina puts 120 plants in her garden, how many orange flowers would she expect?

Answer(c)

[2]

5)



The diagram shows two sets of cards.

(a) One card is chosen at random from Set A and replaced.

(i) Write down the probability that the card chosen shows the letter M.

Answer(a)(i) [1]

(ii) If this is carried out 100 times, write down the expected number of times the card chosen shows the letter M.

Answer(a)(ii) [1]

(b) Two cards are chosen at random, **without** replacement, from Set A.

Find the probability that both cards show the letter S.

Answer(b) [2]

(c) One card is chosen at random from Set A and one card is chosen at random from Set B.

Find the probability that exactly one of the two cards shows the letter U.

Answer(c) [3]

(d) A card is chosen at random, **without** replacement, from Set B until the letter shown is either I or U.

Find the probability that this does not happen until the 4th card is chosen.

Answer(d) [2]