Probability
Difficulty: Medium

Question Paper 2

Level	IGCSE
Subject	Maths (0580/0980)
Exam Board	CIE
Topic	Probability
Paper	Paper 4
Difficulty	Medium
Booklet	Question Paper 2

Time allowed: **77 minutes**

Score: **/67**

Percentage: **/100**

Grade Boundaries:

CIE IGCSE Maths (0580)

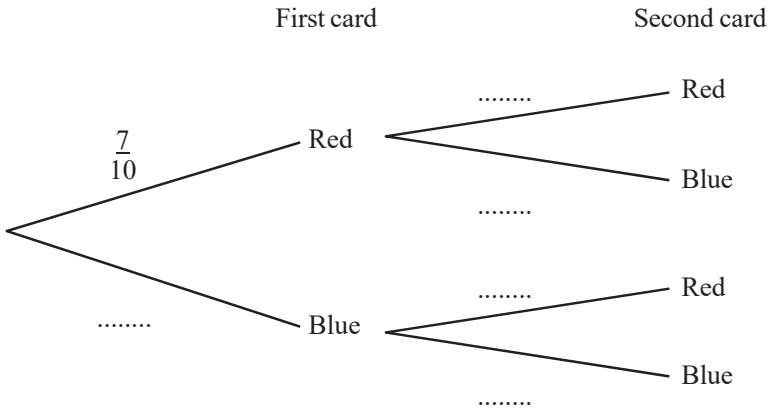
A*	A	B	C	D
>83%	67%	51%	41%	31%

CIE IGCSE Maths (0980)

9	8	7	6	5	4
>95%	87%	80%	69%	58%	46%

In a box there are 7 red cards and 3 blue cards.
A card is drawn at random from the box and is not replaced.
A second card is then drawn at random from the box.

(a) Complete this tree diagram. [3]



(b) Work out the probability that the two cards are of different colours.
Give your answer as a fraction. [3]

In all parts of this question give your answer as a fraction in its lowest terms.

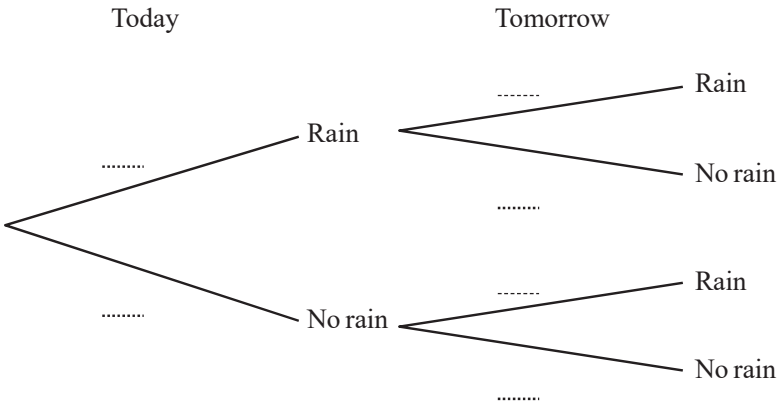
(a) (i) The probability that it will rain today is $\frac{1}{3}$.

What is the probability that it will not rain today? [1]

(ii) If it rains today, the probability that it will rain tomorrow is $\frac{2}{5}$.

If it does not rain today, the probability that it will rain tomorrow is $\frac{1}{6}$.

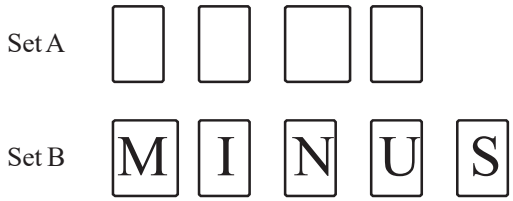
Complete the tree diagram.



[2]

(b) Find the probability that it will rain on at least one of these two days. [3]

(c) Find the probability that it will rain on only one of these two days. [3]



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. [1]

(ii) If this is carried out 100 times, write down the expected number of times the card chosen shows the letter M. [1]

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

Find the probability that both cards show the letter S. [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. [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. [2]

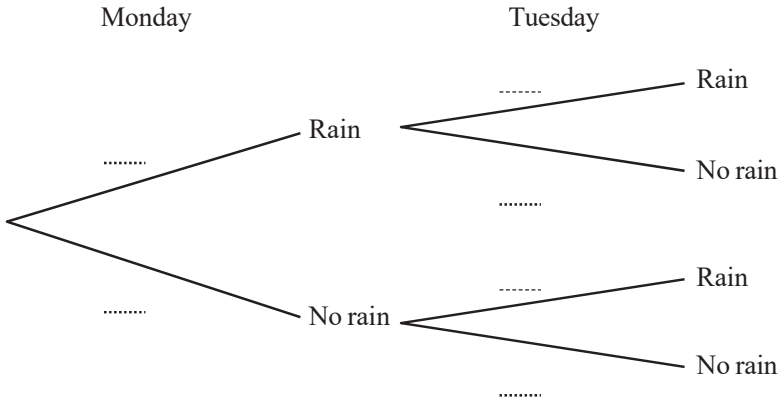
In this question give all your answers as fractions.

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, [2]

(ii) on Monday but not on Tuesday, [2]

(iii) on only one of the two days. [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. [3]

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. [5]

(b) A plant is chosen at random.

Find the probability that it will **not** produce a yellow flower. [3]

(c) If Katrina puts 120 plants in her garden, how many orange flowers would she expect? [2]

Sacha either walks or cycles to school.

On any day, the probability that he walks to school is $\frac{3}{5}$.

(a) (i) A school term has 55 days.

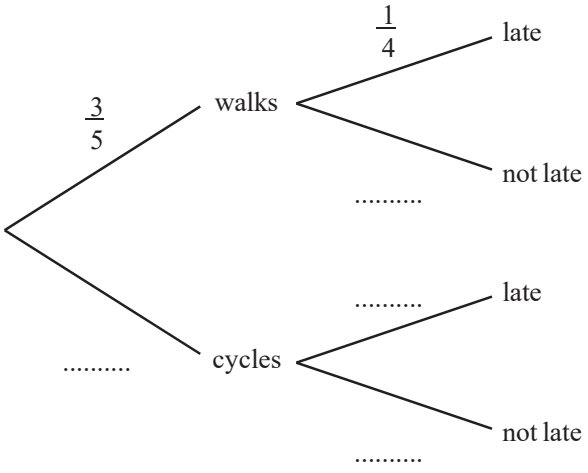
Work out the expected number of days Sacha walks to school. [1]

(ii) Calculate the probability that Sacha walks to school on the first 5 days of the term. [2]

(b) When Sacha walks to school, the probability that he is late is $\frac{1}{4}$.

When he cycles to school, the probability that he is late is $\frac{1}{8}$.

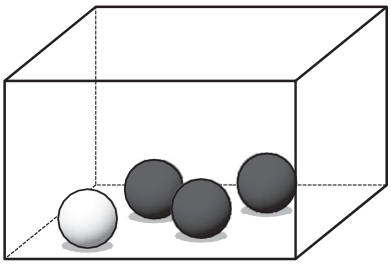
(i) Complete the tree diagram by writing the probabilities in the four spaces provided.



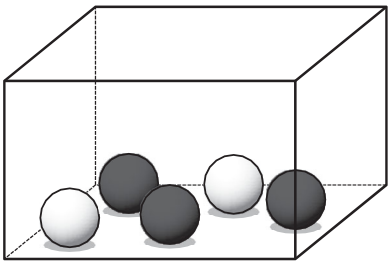
[3]

(ii) Calculate the probability that Sacha cycles to school and is late. [2]

(iii) Calculate the probability that Sacha is late to school. [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.

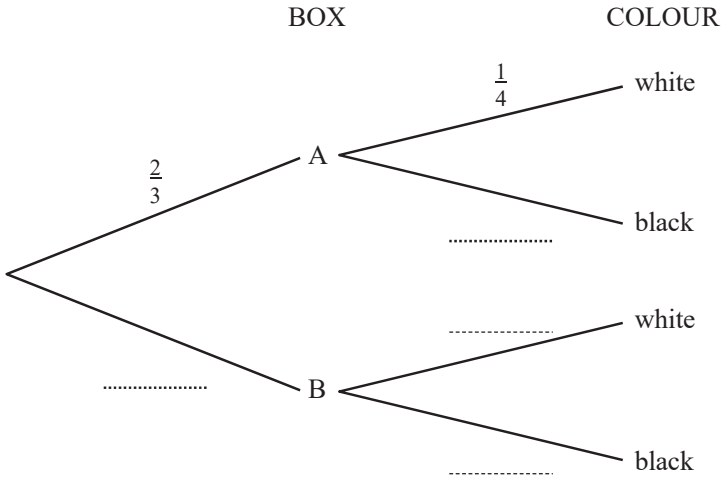
There is a greater probability of choosing a white ball from Box .

Explain your answer. [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]

(ii) Find the probability that Abdul chooses box A and a black ball. [2]

(iii) Find the probability that Abdul chooses a black ball. [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. [2]