1 – (0580/21_Summer_2021_Q17) – *Probability*

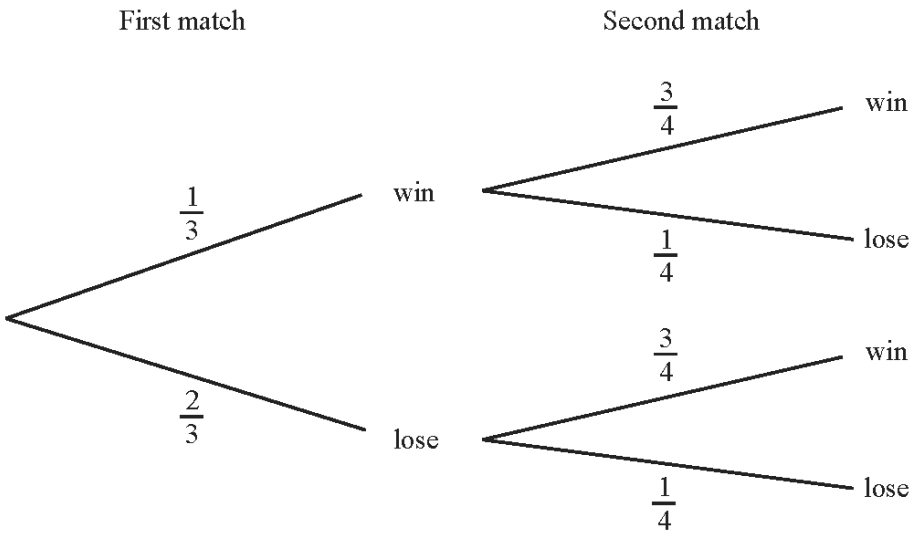
A bag contains 3 blue buttons, 8 white buttons and 5 red buttons.
Two buttons are picked at random from the bag, without replacement.

Work out the probability that the two buttons are either both red or both white.

..... [3]

2 – (0580/21_Summer_2016_Q19) – *Probability*

The probability of a cricket team winning or losing in their first two matches is shown in the tree diagram.



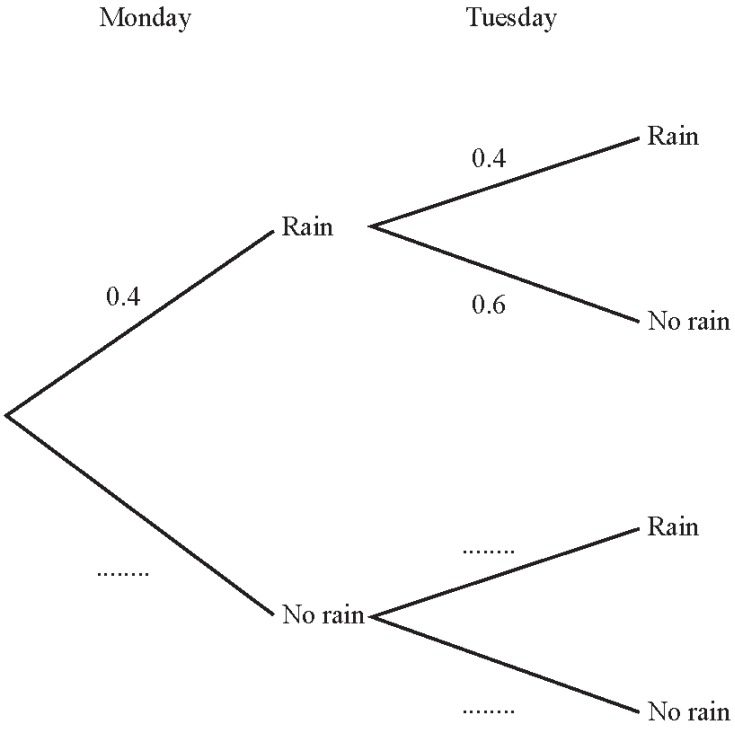
Find the probability that the cricket team wins at least one match.

..... [3]

3 – (0580/21_Winter_2014_Q18) – *Probability*

If it rains today the probability that it will rain tomorrow is 0.4 .
If it does not rain today the probability that it will rain tomorrow is 0.2 .
On Sunday it rained.

(a) Complete the tree diagram for Monday and Tuesday.



[2]

(b) Find the probability that it rains on at least one of the two days shown in the tree diagram.

Answer(b) ..... [3]

4 – (0580/21_Winter_2015_Q20) – *Probability*

The table shows the probability that a person has blue, brown or green eyes.

Eye colour	Blue	Brown	Green
Probability	0.4	0.5	0.1

Use the table to work out the probability that two people, chosen at random,

(a) have blue eyes,

Answer(a) ..... [2]

(b) have different coloured eyes.

Answer(b) ..... [4]

5 – (0580/21_Winter_2019_Q20) – *Probability*

The probability that the school bus is late is $\frac{9}{10}$.

If the school bus is late, the probability that Seb travels on the bus is $\frac{15}{16}$.

If the school bus is on time, the probability that Seb travels on the bus is $\frac{3}{4}$.

Find the probability that Seb travels on the bus.

..... [3]

6 – (0580/21_Summer_2019_Q11) – *Probability*

The diagram shows five cards.
Two of the cards are taken at random, without replacement.

Find the probability that both cards show an even number.

..... [2]

7 – (0580/21_Summer_2021_Q2) – *Probability*

The probability that a train is late is 0.15 .

Write down the probability that the train is not late.

..... [1]

8 – (0580/21_Summer_2018_Q20) – *Probability*

(a) A box contains 3 blue pens, 4 red pens and 8 green pens only.
A pen is chosen at random from the box.

Find the probability that this pen is green.

..... [1]

(b) Another box contains 7 black pens and 8 orange pens only.
Two pens are chosen at random from this box without replacement.

Calculate the probability that at least one orange pen is chosen.

..... [3]

9 – (0580/21_Summer_2020_Q4) – *Probability*

A bag contains blue, red, yellow and green balls only.
A ball is taken from the bag at random.
The table shows some information about the probabilities.

Colour	Blue	Red	Yellow	Green
Probability	0.15	0.2		0.43

(a) Complete the table.

[2]

(b) Abdul takes a ball at random and replaces it in the bag.
He does this 200 times.

Find how many times he expects to take a red ball.

..... [1]

10 – (0580/21_Summer_2023_Q15) – *Probability*

A bag contains 5 green buttons, 2 blue buttons and 6 white buttons.
Maya takes two buttons at random from the bag, without replacement.

Calculate the probability that one button is green and the other button is not green.

..... [3]

11 – (0580/21_Winter_2013_Q6) – *Probability*

S	P	A	C	E	S

One of the 6 letters is taken at random.

(a) Write down the probability that the letter is S.

Answer(a) ..... [1]

(b) The letter is replaced and again a letter is taken at random.
This is repeated 600 times.

How many times would you expect the letter to be S?

Answer(b) ..... [1]

12 – (0580/21_Summer_2012_Q21) – *Probability*

In this question, give all your answers as fractions.

A box contains 3 red pencils, 2 blue pencils and 4 green pencils.
Raj chooses 2 pencils at random, without replacement.

Calculate the probability that

(a) they are both red,

Answer(a) ..... [2]

(b) they are both the same colour,

Answer(b) ..... [3]

(c) exactly one of the two pencils is green.

Answer(c) ..... [3]

13 – (0580/21_Winter_2022_Q25) – *Probability*

A bag contains 5 red balls, 4 blue balls and 3 green balls.

(a) (i) Megan picks a ball at random.

Write down the probability that the ball is red or blue.

..... [1]

(ii) Megan replaces the ball.
She picks a ball at random, notes the colour and replaces the ball.
She repeats this 60 times.

Calculate the number of times the ball is expected to be red or blue.

..... [1]

(b) Mick picks 2 of the 12 balls at random, without replacement.

Calculate the probability that the balls are different colours.

..... [4]

(c) Marie picks balls at random, without replacement, from the 12 balls.
When she picks a green ball she stops.

The probability that she picks a green ball on pick n is $\frac{21}{220}$.

Find the value of n.

$n =$ ..... [2]

14 – (0580/21_Winter_2018_Q22) – *Probability*

A group of 200 people were asked which city they would like to visit next.
The table shows the results.

City	London	Paris	New York	Tokyo
Number of people	50	48	56	46

(a) A person from the group is chosen at random.

Write down the probability that this person would like to visit either Paris or Tokyo next.

..... [2]

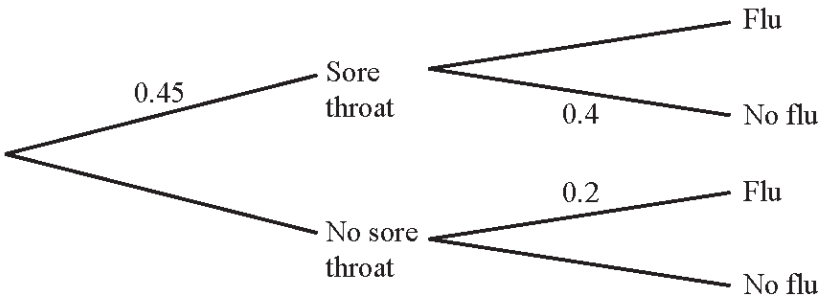
(b) Two people are chosen at random from the group of 200.

Find the probability that one person would like to visit London next and the other person would like to visit New York next.
Give your answer as a percentage.

..... % [3]

15 – (0580/21_Winter_2011_Q10) – *Probability*

In a flu epidemic 45% of people have a sore throat.
If a person has a sore throat the probability of **not** having flu is 0.4.
If a person does not have a sore throat the probability of having flu is 0.2.



Calculate the probability that a person chosen at random has flu.

Answer ..... [4]

16 – (0580/21_Summer_2017_Q8) – *Probability*

Simon has two boxes of cards.
In one box, each card has one shape drawn on it that is either a triangle or a square.
In the other box, each card is coloured either red or blue.

Simon picks a card from each box at random.
The probability of picking a triangle card is t.
The probability of picking a red card is r.

Complete the table for the cards that Simon picks, writing each probability in terms of r and t.

Event	Probability
Triangle and red	
Square and red	$(1-t)r$
Triangle and blue	
Square and blue	

[3]

17 – (0580/21_Summer_2023_Q5) – *Probability*

Eric has four colours of paint.
The table shows the probability that he uses each colour.

Colour	Red	Blue	Green	Yellow
Probability	0.3	0.35	0.13	x

Find the value of x.

$x =$ ..... [2]

18 – (0580/21_Summer_2015_Q5) – *Probability*

Paul and Sammy take part in a race.

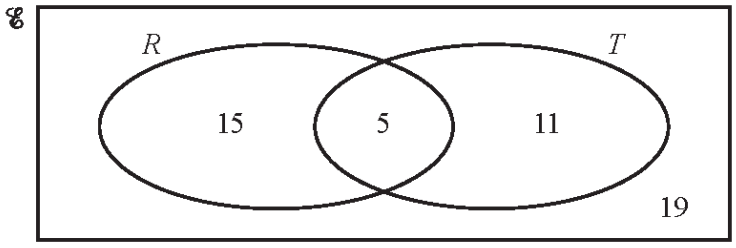
The probability that Paul wins the race is $\frac{9}{35}$.

The probability that Sammy wins the race is 26%.

Who is more likely to win the race?
Give a reason for your answer.

Answer ..... because ..... [2]

19 – (0580/21_Winter_2013_Q22) – *Sets, Probability*



The Venn diagram shows the number of red cars and the number of two-door cars in a car park.
There is a total of 50 cars in the car park.
R = {red cars} and T = {two-door cars}.

(a) A car is chosen at random.

Write down the probability that

(i) it is red and it is a two-door car,

Answer(a)(i) ..... [1]

(ii) it is not red and it is a two-door car.

Answer(a)(ii) ..... [1]

(b) A two-door car is chosen at random.

Write down the probability that it is not red.

Answer(b) ..... [1]

(c) Two cars are chosen at random.

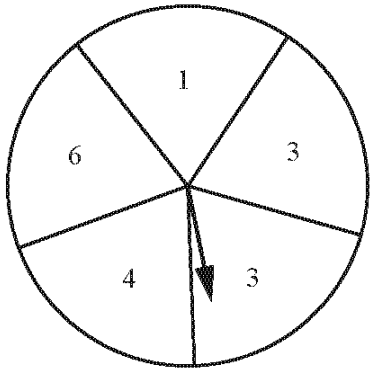
Find the probability that they are both red.

Answer(c) ..... [2]

(d) On the Venn diagram, shade the region $R \cup T'$. [1]

20 – (0580/21_Summer_2017_Q20) – *Probability*

The diagram shows a fair spinner.



Anna spins it twice and adds the scores.

(a) Complete the table for the total scores.

		Score on first spin				
		1	3	3	4	6
Score on second spin	1	2	4	4	5	7
	3	4	6	6	7	9
	3	4	6	6	7	9
	4					
	6					

[1]

(b) Write down the most likely total score.

..... [1]

(c) Find the probability that Anna scores

(i) a total less than 6,

..... [2]

(ii) a total of 3.

..... [1]