

S114 Relative frequency

Q1.

When a drawing pin is dropped it can land point down or point up.

Lucy, Mel and Tom each dropped the drawing pin a number of times.

The table shows the number of times the drawing pin landed point down and the number of times the drawing pin landed point up for each person.

	Lucy	Mel	Tom
point down	31	53	16
point up	14	27	9

Rachael is going to drop the drawing pin once.

(a) Whose results will give the best estimate for the probability that the drawing pin will land point up?

Give a reason for your answer.

.....
.....

(1)

Stuart is going to drop the drawing pin twice.

(b) Use all the results in the table to work out an estimate for the probability that the drawing pin will land point up the first time and point down the second time.

.....

(2)

(Total for question = 3 marks)

Q2.

Four friends each throw a biased coin a number of times.
The table shows the number of heads and the number of tails each friend got.

	Ben	Helen	Paul	Sharif
heads	34	66	80	120
tails	8	12	40	40

The coin is to be thrown one more time.

(a) Which of the four friends' results will give the best estimate for the probability that the coin will land heads?

Justify your answer.

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.....

(1)

Paul says,

"With this coin you are twice as likely to get heads as to get tails."

(b) Is Paul correct?

Justify your answer.

.....
.....
.....

(2)

The coin is to be thrown twice.

(c) Use all the results in the table to work out an estimate for the probability that the coin will land heads both times.

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(2)

(Total for question is 5 marks)

Q3.

There are 300 seeds in a packet of flower seeds.
Each seed will grow into a white flower or a yellow flower or a red flower.

The probability of a seed growing into a white flower is 0.62
45 of the seeds are expected to grow into yellow flowers.

One of the seeds is chosen at random from the packet.

What is the probability that this seed will grow into a red flower?

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(Total for question = 3 marks)

Q4.

Stuart throws a biased coin 10 times.

He gets 7 Tails.

Maxine throws the same coin 50 times.

She gets 30 Tails.

Prasha is going to throw the coin once.

(i) Whose results will give the better estimate for the probability that she will get Tails, Stuart's or Maxine's?

You must give a reason for your answer.

(1)

(ii) Use Stuart's and Maxine's results to work out an estimate for the probability that Prasha will get Tails.

(1)

(Total for question = 2 marks)

Q5.

There are only red counters, blue counters and green counters in a bag.

number of red counters : number of blue counters : number of green counters = 1 : 3 : 7

A counter is going to be taken at random from the bag.

(a) Complete the table below to show each of the probabilities that the counter will be red or blue or green.

Colour	red	blue	green
Probability			

(2)

Jamie takes at random a counter from the bag and records the colour of the counter. He then puts the counter back in the bag.

Jamie does this a number of times.

He records a total of 68 blue counters.

(b) Work out an estimate for the total number of times Jamie takes a counter from the bag.

.....
(2)

(Total for question = 4 marks)

Q6.

There are only red counters and blue counters in a bag.

Joe takes at random a counter from the bag.

The probability that the counter is red is 0.65

Joe puts the counter back into the bag.

Mary takes at random a counter from the bag.

She puts the counter back into the bag.

(a) What is the probability that Joe and Mary take counters of different colours?

.....
(2)

There are 78 red counters in the bag.

(b) How many blue counters are there in the bag?

.....
(2)

(Total for question = 4 marks)

Q7.

When a biased coin is thrown 4 times, the probability of getting 4 heads is $\frac{16}{81}$
Work out the probability of getting 4 tails when the coin is thrown 4 times.

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(Total for question = 2 marks)

Q8.

Thelma spins a biased coin twice.
The probability that it will come down heads both times is 0.09
Calculate the probability that it will come down tails both times.

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(Total for question is 3 marks)