

Revision F4 (Topics 11-12) [36]

1.

Katy and Admir take part in a quiz.

The probability that Katy answers a question correctly is $\frac{2}{3}$

The probability that Admir answers a question correctly is $\frac{3}{4}$

They are asked two questions each.

Calculate the probability that they answer three out of the four questions correctly.

(Total 5 marks)

2.

A computer is used to generate three-digit random numbers from 000 to 999, e.g. 006, 000, 977, 125, ...

Given that a generated number is a multiple of 3, find the probability that it is also a multiple of 4.

(Total 4 marks)

3.

Edeston village has a population of 3500 people.

A new road is planned.

In a survey, school pupils are asked if they are for or against the new road.

	Number of pupils
For	36
Against	24

Hugo assumes responses from the whole village will be in the same proportion as those from the pupils.

(a) Use Hugo's assumption to calculate how many people in Edeston are against the new road.

(b) Explain why the responses from the whole village may **not** be in the same proportion as the responses from the pupils.

(Total 4 marks)

4.

Bob is taking penalties.

The probability that Bob scores from the penalty spot is $\frac{3}{5}$ for each penalty.

Bob takes two penalties.

(a) Draw a fully labelled tree diagram showing all the probabilities.

(3)

(b) Calculate the probability that Bob scores exactly once on his two attempts.

(3)

(Total 6 marks)

5.

In a class of 34 students

- 12 study German
- 25 study Spanish
- 6 do not study either language.

One student in the class is selected at random.

Find the probability that this student studies **both** languages.

(Total 4 marks)

6.

Marie has 25 cards.

Each card has a different symbol on it.

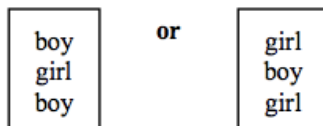
Marie gives one card to Shelley and one card to Pauline.

(a) In how many different ways can Marie do this?

There are 12 boys and 10 girls in David's class.

David is going to pick three different students from his class and write their names in a list in order.

The order will be



(b) How many different lists can David write?

(Total 4 marks)

7.

Jane and Mitzi have both done the same number of practice papers for their mathematics examination.

They both have the same total mark, T .

They do one more practice paper.

Jane scores 89 and her average score increases to 68.

Mitzi scores 57 and her average score decreases to 64.

Find the final number of practice papers taken by each student.

You **must** show your working.

(Total 4 marks)

8.

A box contains 10 coloured discs numbered 1 to 10.

The discs numbered 1 to 5 are red.

The discs numbered 6 to 9 are blue.

The disc numbered 10 is green.

A disc is taken at random from the box and is **not** replaced.

A second disc is then taken from the box.

Calculate the probability that the two discs are the same colour and the numbers on them add to **more than 8**.

(Total 5 marks)