

P15- Stratified Sampling

OCR

16 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.

(a) [3]

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

.....
.....
..... [1]

16 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.

Fraction against $\frac{24}{60}$ of 3500 = 1400

(a) 1400 [3]

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

..... Chosen a sample of school children.
..... They need to choose a sample from different ages.
..... [1]

20 George is the manager of a shoe shop.
He samples 50 of his customers and asks them about the **one** style of shoe they would buy next.
The table shows his results.

Style of shoe	Number of customers
Laced shoes	18
Boots	15
Sandals	8
Trainers	5
Other	4

George buys 1000 pairs of shoes with the number of each style based on his survey results.

How many pairs of sandals should he buy?
Write down any assumption you make about his sample.

.....
..... [3]

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Style of shoe	Number of customers
Laced shoes	18
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Other	4

Sandals

$$\frac{8}{50} = \frac{16}{100} = \frac{160}{1000}$$

George buys 1000 pairs of shoes with the number of each style based on his survey results.

How many pairs of sandals should he buy?
Write down any assumption you make about his sample.

I hope/assume he has chosen a fair sample.

George should choose 160 sandals ✓

[3]

Edexcel

26 Each student at a college is going to be given a notebook.

P15 The colour of each notebook will be red or blue or green or orange.

Bill takes a sample of 50 of the students at the college.
He asks each of these students what colour of notebook they want.

The table gives Bill's results.

Notebook colour	red	blue	green	orange
Number of students	18	16	10	6

There are 3000 students at the college.

(a) Work out how many red notebooks Bill should buy.

26 Each student at a college is going to be given a notebook.

P15 The colour of each notebook will be red or blue or green or orange.

Bill takes a sample of 50 of the students at the college.
He asks each of these students what colour of notebook they want.

$$\frac{3000}{50} = 60$$

The table gives Bill's results.

Notebook colour	red	blue	green	orange
Number of students	18	16	10	6

$$= 50$$

There are 3000 students at the college.

(a) Work out how many red notebooks Bill should buy.

$$\frac{18}{50} \quad \frac{36}{100} \quad \frac{360}{1000} \quad \frac{1080}{3000} \checkmark$$

60 x 18

$$\begin{array}{r} 60 \\ 18 \\ \hline 480 \\ 600 \\ \hline 1080 \end{array}$$

$$\frac{18}{50} \text{ of } 3000$$

$$\frac{1080}{(2)}$$

- (b) Write down one assumption that you made in answering part (a).
Explain how your answer would be affected if this assumption were not true.

.....

.....

.....

(1)

(Total for Question 26 is 3 marks)

- (b) Write down one assumption that you made in answering part (a).
Explain how your answer would be affected if this assumption were not true.

Assumed that the sample of 50 represent the 3000. If it is not, then it would change the amount Bill would need to buy.

(1)

(Total for Question is 3 marks)

AQA