

S124 Stratified sampling

Q1.

Hannah is planning a day trip for 195 students.

She asks a sample of 30 students where they want to go.

Each student chooses one place.

The table shows information about her results.

Place	Number of students
Theme Park	10
Theatre	5
Sports Centre	8
Seaside	7

(i) Work out how many of the 195 students you think will want to go to the Theme Park.

.....
(2)

(ii) State any assumption you made **and** explain how this may affect your answer.

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.....
.....

(1)

(Total for question = 3 marks)

Q2.

Each person in a fitness club is going to get a free gift.
Stan is going to order the gifts.

Stan takes a sample of 50 people in the fitness club.
He asks each person to tell him the gift they would like.

The table shows information about his results.

Gift	Number of people
sports bag	17
gym towel	7
headphones	11
voucher	15

There are 700 people in the fitness club.

(i) Work out how many sports bags Stan should order.

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(2)

(ii) Write down any assumption you made **and** explain how this could affect your answer.

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(1)

(Total for question = 3 marks)

Q3.

(a) Max wants to take a random sample of students from his year group.

(i) Explain what is meant by a random sample.

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.....

(ii) Describe a method Max could use to take his random sample.

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.....
.....

(2)

(b) The table below shows the numbers of students in 5 year groups at a school.

Year	Number of students
9	239
10	257
11	248
12	190
13	206

Lisa takes a stratified sample of 100 students by year group.

Work out the number of students from Year 9 she has in her sample.

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(2)

(Total for Question is 4 marks)

Q4.

156 students went to London.

Each student visited one of the British Museum or the National Gallery or the Stock Exchange.

The table gives information about these students.

	Place visited		
	British Museum	National Gallery	Stock Exchange
Male	25	18	35
Female	27	32	19

Kate takes a sample of 30 of these students.

The sample is stratified by place visited and by gender.

Work out the number of male students who visited the Stock Exchange in the sample.

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(Total for Question is 2 marks)

Q5.

There are a total of 300 students in Year 7, Year 8 and Year 9 at Mathsville High School.

The table shows information about the students.

	Boys	Girls
Year 7	60	45
Year 8	55	40
Year 9	41	59

The Headteacher takes a sample of 50 students.

His sample is stratified by year and by gender.

Work out the number of girls from Year 9 in the Headteacher's sample.

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(Total for Question is 2 marks)

Q6.

The table shows information about 1065 students.

	Male	Female
Year 7	126	109
Year 8	112	134
Year 9	121	114
Year 10	87	94
Year 11	88	80

Elena takes a stratified sample of 120 students by year group and by gender.

Work out the number of Year 8 female students in her sample.

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(Total for Question is 2 marks)

Q7.

Henri is carrying out a survey of the people aged 65 and over in his village.

The table shows information about these people.

Age	Male	Female
65 – 69	20	22
70 – 74	18	21
75 – 79	15	18
80 – 84	8	16
85 – 89	5	10
90+	2	5
Total	68	92

Henri is going to take a sample of 30 people stratified by age.

How many people aged 75 – 79 should be in the sample?

(Total for Question is 3 marks)

Q8.

In Holborn School there are

460 students in Key Stage 3

320 students in Key Stage 4

165 students in Key Stage 5

Nimer is carrying out a survey.

He needs a sample of 100 students stratified by Key Stage.

Work out the number of students from Key Stage 3 there should be in the sample.

(Total for Question is 2 marks)

Q9.

Clive wants to estimate the number of bees in a beehive.

Clive catches 50 bees from the beehive.

He marks each bee with a dye.

He then lets the bees go.

The next day, Clive catches 40 bees from the beehive.

8 of these bees have been marked with the dye.

(i) Work out an estimate for the number of bees in the beehive.

..... bees

(ii) Write down any assumptions you have made.

.....
.....

(Total for Question is 4 marks)

Q10.

* Toga wants to estimate the number of termites in a nest.

On Monday Toga catches 80 termites.

He puts a mark on each termite.

He then puts all 80 termites back in the nest.

On Tuesday Toga catches 60 termites.

12 of these termites have a mark on them.

Work out an estimate for the total number of termites in the nest.

You must write down any assumptions you have made.

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(Total for question = 4 marks)