

Sampling

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Worked example

A stratified sample of 100 people is taken from the following information.

Age (x)	Population
$0 < x \leq 21$	50
$21 < x \leq 40$	500
$40 < x \leq 60$	100
$x > 60$	350

How many of each age group should be chosen in the sample?

Your turn

A stratified sample of 100 people is taken from the following information.

Age (x)	Population
$0 < x \leq 21$	750
$21 < x \leq 40$	200
$40 < x \leq 60$	20
$x > 60$	30

How many of each age group should be chosen in the sample?

$$0 < x \leq 21: 75$$

$$21 < x \leq 40: 20$$

$$40 < x \leq 60: 2$$

$$x > 60: 3$$

Worked example

A stratified sample of 100 people is taken from the following information.

Age (x)	Population
$0 < x \leq 21$	55
$21 < x \leq 40$	582
$40 < x \leq 60$	168
$x > 60$	195

How many of each age group should be chosen in the sample?

Your turn

A stratified sample of 100 people is taken from the following information.

Age (x)	Population
$0 < x \leq 21$	245
$21 < x \leq 40$	291
$40 < x \leq 60$	84
$x > 60$	380

How many of each age group should be chosen in the sample?

$$0 < x \leq 21: 75$$

$$21 < x \leq 40: 20$$

$$40 < x \leq 60: 2$$

$$x > 60: 3$$

Worked example

A stratified sample of 50 is taken from the following information

Year 7	Year 8	Year 9	Year 10
72	108	66	54

How many of each year group should be sampled?

Your turn

A stratified sample of 20 is taken from the following information

Ireland	Wales	Scotland
8	28	44

How many people of each nationality should be sampled?

Ireland: 2

Wales: 7

Scotland: 11

Worked example

A stratified sample of 50 is taken from the following information

Teachers	Teaching Assistants	Admin	Other
94	16	41	29

How many of each type of employee should be sampled?

Your turn

A stratified sample of 40 is taken from the following information

Type	Milk	Dark	White
Number	600	220	130

How many of each chocolate should be sampled?

Milk: 25

Dark: 9

White: 6

Worked example

There are 300 passengers on a flight.

A stratified sample is taken by type of passenger

Complete the table.

Type	Adult Male	Adult Female	Children
Number on flight		108	60
Number in sample		18	

Your turn

There are 400 members of a sports club.

A stratified sample is taken by age group.

Complete the table.

	Junior	18 - 39	40 - 59	Senior
Members	75	100	120	105
Number in sample	15	20	24	21

Worked example

Describe a method for taking a random sample of 5 students from a class of 30

Your turn

Describe a method for taking a random sample of 10 students from a class of 50

Assign each student a number from 1 to 50.

Pick a random number using a random number generator.

Ignore any time a number appears twice.

Repeat until 10 numbers have been chosen.

Worked example

A student wants to estimate the number of slugs in a greenhouse. They catch and mark 20 slugs. The eels are returned to the lake. The next day the student catches 300 slugs. Of these 300 slugs, 5 are ringed.

Estimate how many slugs there are in total in the greenhouse

Your turn

A student wants to estimate the number of eels in a lake. They catch and ring 50 eels. The eels are returned to the lake. The next day the student catches 400 eels. Of these 400 eels, 10 are ringed.

Estimate how many eels there are in total in the lake

2000