

WORKIT!

There are 208 employees in a company. The table shows numbers of employees in each department.

A survey is to be conducted with a sample of 50 employees.

Sales	Administration	Manufacturing	Delivery	Accounts	Management
56	33	76	21	12	10

- a Explain the difference between a population and a sample, illustrating your answer with the information above.

The population is the whole group, in this case all the employees.

The sample is a smaller group chosen from the population. In this case, it is the 50 employees to be used for the survey.

A stratified sample of 50 employees is needed for the survey.

- b Calculate the number of employees in the sales department that should be chosen.

$$\% \text{ of the employees who work in sales} = \frac{\text{number who work in sales}}{\text{total of all employees}} \times 100$$

$$= \frac{56}{208} \times 100$$

$$= 26.9\%$$

Find this percentage of the number in the sample.

$$\text{Number of sales employees in sample} = 26.9\% \text{ of } 50 = 0.269 \times 50 = 13.45$$

The sample will include 13 members of the sales department.

Round the calculated value to the nearest whole number.



NAILIT!

An even quicker way of doing this would be to multiply 50 by the fraction $\frac{56}{208}$.

DO IT!

Think about how you could perform a survey on students in your school. How many students should be in the sample? How would you stratify the sample?



CHECK IT!

- 1 A youth club has 350 members. The club leader wants to survey the members to check the club provides the sorts of activities young people like. He has decided to conduct a survey of 50 members selected at random.

The table shows the number of male and female members.

Male	Female
185	165

Work out the number of males that should be chosen for the sample.

- 2 The table gives information about the numbers of students in a school for each of the two GCSE years.

	Male	Female
Year 10	146	164
Year 11	155	175

A stratified sample of 50 students is to be taken for a survey stratified by year and by gender.

Work out the number of male students in year 10 that should be in this sample.