

Essential Maths Skills for AS/A-level Business

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The listed content is assessed by the awarding bodies AQA, OCR, Pearson Edexcel and WJEC at AS and A-level.

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1 Key mathematical skills

Averages

Averages are very useful in business. They enable managers to make comparisons and identify parts of the business that are performing well, and parts of the business that are not. There are various types of average (median, mode, mean etc.). The main one you need to be able to calculate is a mean average. This average is calculated by adding up the numbers and dividing by how many numbers there are.

A Worked examples

- a** A car dealership has five salespeople. The manager wants to review their performance. The table shows the number of cars each salesperson sold in July. Calculate the average number of cars sold by the sales team in July.

Step 1: add the number of cars sold by all the salespeople to find the total number of cars sold by the dealership.

$$15 + 30 + 50 + 25 + 35 = 155 \text{ cars}$$

Step 2: divide the total number of cars sold by the number of salespeople (in this case, five) to calculate the average number of cars sold.

$$\frac{155}{5} = 31 \text{ cars}$$

Calculating this average allows the manager to see which sales staff are performing above average (Nick and Tom) and who is selling below average (Adam, Priya and Sam).

- b** The manager of the car dealership also wants to monitor the number of days' absence each employee had in July. Calculate the average number of days employees were absent in July.

Step 1: add all the days absent to find the total number of days absent.

$$6 + 0 + 0 + 4 + 0 = 10 \text{ days absent}$$

Step 2: divide the total number of days absent by the number of salespeople (in this case, five) to calculate the average number of days absent.

$$\frac{10}{5} = 2 \text{ days absent}$$

Table 2.1

Name	Number of cars sold in July
Adam	15
Priya	30
Nick	50
Sam	25
Tom	35

Table 2.2

Name	Number of days absent in July
Adam	6
Priya	0
Nick	0
Sam	4
Tom	0

B Guided questions

Copy out the workings and complete the questions on a separate piece of paper.

A small chain of grocery stores recorded the following sales in August and September.

Table 2.3

Store name	Value of sales in August (£)	Value of sales in September (£)
Bradford	75 000	80 000
Leeds	80 000	90 000
Huddersfield	105 000	100 000
Dewsbury	115 000	130 000

1 a Calculate the average value of sales in August.

Step 1: calculate the total value of sales in August.

$$75\,000 + 80\,000 + 105\,000 + 115\,000 = \pounds 375\,000$$

Step 2: divide this number by the number of stores.

$$\frac{\pounds 375\,000}{4} = \pounds \underline{\hspace{2cm}}$$

b Calculate the average value of sales in September.

Step 1: calculate the total value of sales in September.

$$80\,000 + 90\,000 + 100\,000 + 130\,000 = \underline{\hspace{2cm}}$$

Step 2: divide this number by the number of stores.

$$\frac{\text{Total value of sales}}{\text{Number of stores}} = \underline{\hspace{2cm}}$$

2 Identify the store(s) that recorded a below average value of sales in September.

C Practice questions

3 An entrepreneur is doing an analysis of his competitors. He finds out the following information.

- Competitor A has 135 stores.
- Competitor B has 40 stores.
- Competitor C has 95 stores.

a What is the average number of stores owned by the entrepreneur's competitors?

b The entrepreneur has six stores. What is the average number of stores owned by all four businesses, including the entrepreneur's business?

4 A florist is investigating how long flowers last before they begin to droop and can no longer be sold to customers. He finds lilies last for 7 days, chrysanthemums last for 8 days, carnations last for 10 days and roses last for 5 days. He would like to collect information about tulips and daffodils next. Calculate the average time the florist's flowers last, based on the data he has available.

5 A manager and her team are looking at spending by departments. They work out that average spending in the current year has been £15 000. They looked at five departments:

- Marketing spent £20 000.
- Production spent £20 000.
- Human resources spent £5 000.
- Customer services spent £10 000.

The sales team is the fifth department. Considering the average spend was £15 000, what must the sales team have spent?