

1 Averages and range

- a) Find the median and the mode of the cards.
b) Find the mean and the range.

Cards	12	14	3	5	14	15	6	11
In order	3	5	6	11	12	14	14	15

- a) median = $(11 + 12) \div 2 = 11.5$, mode = 14
b) mean = $80 \div 8 = 10$, range = $15 - 3 = 12$

2 Averages: a missing number

Five cards have a mean of 7. Four of them are 4, 10, 6 and 9.

- a) Find the fifth card.
b) A sixth card is added. The mean of the six cards is 8. Find the sixth card.

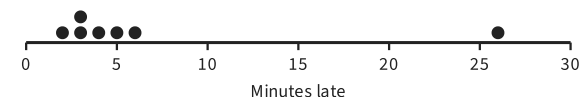
4	10	6	9	6	13
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- a) $5 \times 7 = 35$, $35 - 29 = 6$
b) $6 \times 8 = 48$, $48 - 35 = 13$

3 Choosing the best average

How many minutes seven buses were late.

- a) Find the mean and the median.
b) Which better describes a typical bus? Give a reason.



- a) mean = $49 \div 7 = 7$, median = 4
b) the median: 26 is an outlier that pulls the mean up

4 Averages: comparing

Two archers each shoot five arrows.

- a) Work out the mean and the range for each archer.
b) Compare the two archers' scores.

Archer	Scores	Mean	Range
Jas	8, 8, 7, 9, 8	8	2
Kim	10, 6, 10, 9, 10	9	4

- a) in the table
b) Kim scores more on average; Jas is more consistent (smaller range)

Averages and range revision mat answers

Foundation A

5 Mean from a frequency table

How many times 25 students went to the cinema last month.

- a) Work out the mean number of trips.
b) Find the median number of trips.

Trips to the cinema	0	1	2	3	4	Total
Frequency	5	8	6	4	2	25
Trips $\times$ frequency	0	8	12	12	8	40

- a) $40 \div 25 = 1.6$
b) the 13th value: 1

6 Averages from a bar chart

- a) Find the median shoe size of these 20 people.
b) Lucy says the range is 5. What mistake has she made?



- a) 10th and 11th: size 6
b) she used the frequencies; $8 - 4 = 4$

7 Estimated mean: grouped data

The times 20 people took to finish a puzzle.

- a) Work out an estimate of the mean time.
b) Why is your answer only an estimate?

Time, t (min)	Frequency	Midpoint	Freq $\times$ midpoint
$0 < t \leq 10$	4	5	20
$10 < t \leq 20$	9	15	135
$20 < t \leq 30$	5	25	125
$30 < t \leq 40$	2	35	70
Total	20		350

- a) $350 \div 20 = 17.5$ min
b) it uses midpoints, not the real times

8 Grouped data: averages

How far 40 people cycle to work.

- a) Write down the modal class.
b) Which class contains the median?

Distance, d (km)	Frequency
$0 < d \leq 5$	13
$5 < d \leq 10$	11
$10 < d \leq 15$	12
$15 < d \leq 20$	4

- a) $0 < d \leq 5$
b) the 20th and 21st: $5 < d \leq 10$