

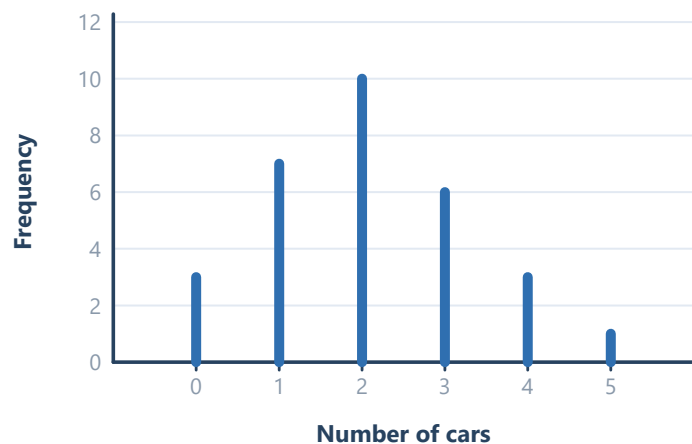
GCSE Maths: Averages from frequency tables (Higher): answers

GCSE Maths - Statistics - Higher - Lesson 24.4

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch24-statistics/higher/averages-from-frequency-tables/

Exercise 24D Averages from frequency tables Non-calculator

- 1 The vertical line chart shows the number of cars owned by each of 30 households.
 (a) How many households own 2 cars? (b) What is the mode? (c) How many households have more than 2 cars? (d) Work out the mean number of cars.



- (a) Households with 2 cars

Answer: 10

- (b) Mode

Answer: 2

- (c) Households with more than 2 cars

Answer: 10

- (d) Mean number of cars

Answer: 2.1

- 2 Work out the mean from each frequency table.

- (a)

Value	1	2	3	4
Frequency	3	6	8	3

Answer: 2.55

(b)

Value	0	1	2	3
Frequency	5	8	4	3

Answer: 1.25

(c)

Value	10	20	30	40
Frequency	2	4	3	1

Answer: 23

3 Work out the median from each frequency table.

(a)

Value	1	2	3	4
Frequency	3	6	8	3

Answer: 3

(b)

Value	0	1	2	3
Frequency	5	8	4	3

Answer: 1

(c)

Value	2	4	6	8	10
Frequency	1	4	7	5	3

Answer: 6

4 Write down the mode and the range from each frequency table.

(a)

Value	1	2	3	4
Frequency	3	6	8	3

Mode

Answer: 3

(b)

Value	5	6	7	8
Frequency	9	4	2	5

Mode

Answer: 5

(c)

Value	1	2	3	4
Frequency	3	6	8	3

Range

Answer: 3

(d)

Value	5	6	7	8
Frequency	9	4	2	5

Range

Answer: 3

5 The table shows the shoe sizes of the 30 students in a class.

Shoe size	3	4	5	6	7	8
Frequency	2	5	9	7	4	3

Work out (a) the mode, (b) the median, (c) the range, (d) the mean, to 1 decimal place.

(a) Mode

Answer: 5

(b) Median

Answer: 5

(c) Range

Answer: 5

(d) Mean

Answer: 5.5

6 A hockey team played 30 matches. The table shows the goals scored.

Goals	0	1	2	3	4	5
Matches	4	9	8	5	3	1

Work out the mean number of goals per match, correct to 2 decimal places.

Answer: 1.90

7 Complete the table, given that 40 people were surveyed.

Passengers per car	1	2	3	4
Cars	9	14	?	6

Work out the missing frequency, then the number of passengers in total.

- (a) Missing frequency

Answer: 11

- (b) Total passengers

Answer: 94

- 8 The tables show the number of siblings of the students in two classes.

Class A

Siblings	0	1	2	3
Frequency	6	9	3	2

Class B

Siblings	0	1	2	3
Frequency	4	6	7	3

Which class has the higher mean number of siblings? Show your working.

Answer: Class B (mean 1.45 compared with 1.05)

- 9 Jon works out the mean of this table by adding the values and dividing by the number of rows: $(1 + 2 + 3 + 4) \div 4 = 2.5$.

Value	1	2	3	4
Frequency	3	8	6	3

Explain his mistake and work out the correct mean.

Answer: 2.45

- 10 The table shows the number of texts received by 20 students one evening.

Texts	1	2	3	4	5
Frequency	4	6	7	2	1

- (a) Work out the mean number of texts.

Answer: 2.5

- (b) How many students received more texts than the mean?

Answer: 10

- 11 The table shows the scores of students in a quiz. The mean score is 2.4.

Score	1	2	3	4
Frequency	4	x	6	3

Work out the value of x .

Answer: 7

- 12** The frequencies of the scores 1 to 5 are 3, a , b , 4 and 2. There are 20 values in total and the mean is 2.85. Work out a and b .

Answer: $a = 5$, $b = 6$

- 13** A frequency table has a mode of 3, but a mean that is bigger than 3. Give an example of a table where this happens and show that it works.

Answer: For example values 1, 2, 3, 10 with frequencies 1, 2, 5, 2: mode 3, mean 4.

- 14** The table shows the number of rooms in each of 25 houses.

Rooms	2	3	4	5	6
Houses	3	6	9	5	2

Work out (a) the mean, (b) the median, (c) the mode and (d) the range of the number of rooms.

- (a)** Mean

Answer: 3.88

- (b)** Median

Answer: 4

- (c)** Mode

Answer: 4

- (d)** Range

Answer: 4

- 15** Table A has values 2, 3, 4 with frequencies 1, 8, 1. Table B has values 1, 3, 5 with frequencies 3, 4, 3. Show that both tables have the same mean but different ranges.

Answer: Both means are 3; the ranges are 2 and 4.