

Name:

Exam Style Questions

Mean from a Frequency Table



Corbettmaths

Equipment needed: Calculator, pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

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Video 54



Answers and Video Solutions



1. Robbie played twenty football matches for his school team.
The number of goals scored in each game are shown in the table.



Goals x	Number of matches f	fx
0	3	0
1	5	5
2	9	18
3	1	3
4	2	8

- (a) Work out the total number of goals scored by Robbie.

$$0 + 5 + 18 + 3 + 8$$

34

.....
(2)

- (b) Calculate the mean number of goals scored per game.

$$34 \div 20 = 1.7$$

$$20 \overline{) 34.0} \begin{array}{r} 01.7 \\ \underline{20} \\ 14 \\ \underline{14} \\ 0 \end{array}$$

1.7

.....
(1)

2. The table shows the number of sweets in 20 bags.



Number of sweets	Frequency
23	1
24	4
25	9
26	3
27	3

$$\begin{array}{l} fx \\ 23 \times 1 = 23 \\ 24 \times 4 = 96 \\ 25 \times 9 = 225 \\ 26 \times 3 = 78 \\ 27 \times 3 = 81 \\ \hline 503 \end{array}$$

Calculate the mean.

$$503 \div 20 = 25.15$$

$$\begin{array}{r} 25.15 \\ \hline (3) \end{array}$$



3. Lily visits an arcade while on holiday in Weston-Super-Mare. She plays 100 games and wins tickets that she can exchange for prizes. The table below shows the results.

Number of tickets won	Frequency	fx
0	2	0
1	11	11
2	28	56
3	18	54
4	11	44
5	15	75
6	10	60
7	2	14
8	3	24
	100	338

(a) Work out the total of tickets won.

338

.....
(2)

(b) Calculate the mean number of tickets per game.

$$338 \div 100$$

3.38

.....
(2)

4. Thirty students were asked how many cats they owned. The results are shown in the table.




Number of cats x	Number of children f	fx
0	6	0
1	13	13
2	7	14
3	3	9
4	1	4
	30	+ 40

Calculate the mean number of cats owned per child.

$$40 \div 30 = 1.333\dots$$

or $1.\dot{3}$

$$\begin{array}{r} 1.33 \\ \hline (3) \end{array} \text{ to 2 decimal places}$$

5.  A company collected data about the number of internet devices in each of 50 households.

The table shows the results.

Number of devices	Number of households	fx
0	1	0
1	1	1
2	2	4
3	4	12
4	9	36
5	13	65
6	10	60
7	7	49
8	3	24
	50	<u>251</u>

- (a) Work out the total number of internet devices in these 50 households

$$\begin{array}{r} 251 \\ \hline \end{array}$$

(2)

- (b) Calculate the mean number of internet devices per household.

$$251 \div 50 = 5.02$$

$$\begin{array}{r} 5.02 \\ \hline \end{array}$$

(2)

6.



Alex works for the council.

He records the number of people in cars travelling down a street over one hour.

Here are his results.

Number of people in each car x	Number of cars f	fx
1	41	41
2	54	108
3	32	96
4	20	80
5	3	15
	150	340

(a) Work out the total number of cars that travelled down the street.

$$\begin{array}{r} 150 \\ \hline \end{array} \quad (1)$$

(b) Work out the total number of people that travelled in cars down the street.

$$\begin{array}{r} 340 \\ \hline \end{array} \quad (2)$$

(c) Work out the mean number of people travelling in each car.

$$340 \div 150 = 2.2666\dots$$

$$\begin{array}{r} 2.267 \\ \hline \end{array} \quad \begin{array}{l} \text{to 3} \\ \text{decimal} \\ \text{places} \end{array} \quad (2)$$

7. Mr Edwards asks his class how long they spent revising for a test.



The table shows the results.

Hours of Revision	Frequency	fx
0	1	0
1	10	10
2	7	14
3	3	9
4	1	4
5	3	15
	25	52

Mr Edwards says "the average amount of time spent revising was 1 hour."

Do you agree with him?

Explain your answer.

The mode is 1 hour.

$$52 \div 25 = 2.08 \text{ hours}$$

The mean is 2.08 hours. (more than twice Mr. Edward's claim)

The median is the 13th person, which is 2 hours.

$$\text{Mode} = 1 \text{ hr} \quad \text{Mean} = 2.08 \text{ hrs} \quad \text{Median} = 2 \text{ hrs}$$

No, the mean and median are at least double his claim of 1 hour.

(4)

8.

Chloe owns a restaurant.



She surveys a group of people about how many times they have visited her restaurant.

The highest number of visits was 5.

The table shows some information about her results.

Number of Visits	Frequency	visits
0	41	0
1	38	38
2	15	30
3	x	$3x$
4	3	12
5	1	5
		<hr/>
		$3x + 85$

The total number of visits to her restaurant by the group was 160

Find the missing frequency.

$$3x + 85 = 160$$

$$3x = 75$$

$$x = 25$$

25

.....
(3)

9. The table shows the amount of money withdrawn from a cash machine.



Money Withdrawn	Frequency
£10	22
£20	15
£30	3
£40	3
£50	5
£100	2

50

fx
 220
 * 300
 90
 120
 250
 200

 1180

(a) Write down the modal amount of money withdrawn.

£10
 (1)

(b) Find the median amount of money withdrawn.

$$\frac{50+1}{2} = 25.5^{\text{th}} \text{ value}$$

£20
 (2)

(c) Write down the Mean amount of money withdrawn.

$$1180 \div 50 = £23.60$$

£23.60
 (3)

10. A French teacher asks her class of 20 students how to spell 10 words.



The table shows the results.

Correct Answers	Frequency	fx
5	1	5
6	3	18
7	5	35
8	8 ✓	64
9	2 ✓	18
10	1 ✓	10
	20	150

Work out the percentage of the class that scored greater than the mean number of correct answer.

$$150 \div 20 = 7.5$$

$$20 \overline{) 150.0} \begin{array}{r} 007.5 \\ \underline{140} \\ 100 \\ \underline{90} \\ 100 \\ \underline{90} \\ 100 \end{array}$$

$$\frac{11}{20} = 55\%$$

.....55.....%

(4)

11. Simon rolls a fair six-sided dice 30 times.
He records the results in a table, however misses two of the frequencies.



Number	Frequency
1	6
2	3
3	5
4	x
5	y
6	6

$$\begin{array}{r}
 fx \\
 6 \\
 6 \\
 15 \\
 4x \\
 5y \\
 36 \\
 \hline
 105
 \end{array}$$

The mean result is 3.5

Work out the two missing numbers.

$$30 \times 3.5 = 105$$

$$\begin{array}{l}
 x+y+20=30 \\
 x+y=10
 \end{array}$$

$$\begin{array}{l}
 4x+5y+63=105 \\
 4x+5y=42
 \end{array}$$

$$4x + 5y = 42$$

$$x + y = 10 \quad \rightarrow \times 4$$

$$4x + 4y = 40$$

$$4x + 5y = 42$$

$$y = 2$$

$$x = 8$$

(4)

12. The star rating, from 1 to 5, of hotels in a city are summarised below.



Star rating	Frequency
1	4
2	17
3	23
4	x
5	18

f_x
 4
 34
 69
 4x
 90

 197 + 4x

62 + x

The mean star rating of a hotel in the city is 3.575

Calculate the value of the missing frequency, x.

$$\frac{197 + 4x}{62 + x} = 3.575$$

$$197 + 4x = 3.575(62 + x)$$

$$197 + 4x = 221.65 + 3.575x$$

$$-3.575x \qquad -3.575x$$

$$197 + 0.425x = 221.65$$

$$-197 \qquad -197$$

$$0.425x = 24.65$$

$$x = 58$$

58

 (4)