

Lesson 6

GCSE Mathematics Statistics II : Handelling and Processing Data

6.1 The Mean from Tabled Data

Question

GCSE Examination Question from May 2013, Paper 3H Q1

The table shows information about the mark scored on an examination question by each of 40 students.

Mark	Number of students
0	13
1	2
2	3
3	8
4	14

Work out the mean mark.

[3 marks]

Answer

It's important that it is understood what the table is saying.

It's a summary of the following list of data...

0 0 0 0 0 0 0 0 0 0
0 0 0 1 1 2 2 2 3 3
3 3 3 3 3 3 4 4 4 4
4 4 4 4 4 4 4 4 4 4

Thus, we add up all the numbers in this list and dividing by the number of numbers.

But writing out the list like this is tedious.

There is a more succinct way of obtaining the mean, that avoids writing out the list.

Mark	Number of students
0	13
1	2
2	3
3	8
4	14

So, the mean mark is :

6.2 Exercise

Question 1

GCSE Examination Question from January 2014, Paper 4H Q4

The table shows information about the number of goals scored by a football team in 30 matches.

Number of goals scored	Frequency
0	2
1	10
2	7
3	6
4	3
5	2

Work the mean number of goals scored.

[3 marks]

Question 2

GCSE Examination Question from January 2013, Paper 4H Q3

The table shows information about the marks of 20 students in a science test.

Mark	Frequency
6	2
7	4
8	5
9	8
10	1

Work the mean number of marks scored.

[3 marks]

Question 3

GCSE Examination Question from May 2014, Paper 4H Q10

The table shows information about the times, in minutes, taken by 50 people to get to work.

Time taken (t minutes)	Frequency
$0 < t \leq 10$	6
$10 < t \leq 20$	10
$20 < t \leq 30$	19
$30 < t \leq 40$	15

Work out an estimate for the mean time taken to get to work.

HINT : Use mid-interval times.

e.g. mid-interval of $0 < t \leq 10$ is 5

[4 marks]

Question 4

GCSE Examination Question from November 2006, Paper 3H Q4(b)

The table shows information about the ages of the students in a school.

Age, x years	Frequency
$9 \leq x < 11$	30
$11 \leq x < 13$	12
$13 \leq x < 15$	18
$15 \leq x < 19$	60

Calculate an estimate of the mean age of these students.

Give your answer correct to 3 significant figures.

[6 marks]

Question 5

GCSE Examination Question from May 2013, Paper 4H Q12

The table shows information about the amount of money, in dollars, spent in a shop in one day by 80 people.

money spent, x dollars	Frequency
$0 < x \leq 20$	24
$20 < x \leq 40$	20
$40 < x \leq 60$	9
$60 < x \leq 80$	12
$80 < x \leq 100$	15

Work out an estimate for the total amount of money spent in the shop that day.

NOTICE : You are **NOT** asked to work out the mean.

[3 marks]

Question 6

GCSE Examination Question from January 2012, Paper 3H Q7.

The table shows information about the numbers of text messages sent by 40 teenagers in one day.

Number of text messages	Number of teenagers	Mid-interval value
0 to 2	3	1
3 to 5	6	4
6 to 8	10	
9 to 11	15	
12 to 14	5	
15 to 17	1	

(a) Write down the modal class.

[1 mark]

(b) (i) Work out an estimate for the mean number of texts sent by the 40 teenagers in one day.

(ii) Explain why your answer to part (b) (i) is an estimate.

[5 marks]

Question 7

The number of commendations awarded to each Year 9 pupil in a week at Shrewsbury School is given in the table below.

Number of Commendations	Number of Pupils	Mid-interval value
$0 \leq x \leq 8$	60	4
$9 \leq x \leq 15$	30	12
$16 \leq x \leq 26$	18	
$27 \leq x \leq 45$	12	

Calculate an estimate of the mean number of commendations received by a pupil.

Give your answer correct to 3 significant figures.