

FREQUENCY DISTRIBUTIONS AND HISTOGRAMS

1) This frequency table shows the number of pairs of shoes owned by each person in a survey of 75 people. Find the median no of pairs per person.

No of pairs	1	2	3	4	5	6	7
No of people	3	17	21	14	11	5	4

2) This frequency table shows the number of dandelions counted in each square metre of a field. Find the median number of dandelions per square metre.

No of dandelions	0	1	2	3	4	5
Frequency	5	11	13	21	36	14

3) The masses of a sample of 120 potatoes are as shown in the table:

Mass (g)	80-	100-	120-	140-	160-	180-200
No of potatoes	16	29	30	24	14	7

- Calculate the mean mass of the potatoes.
- Draw a histogram displaying the above data.
- Use your histogram to estimate the median mass of a potato.

4) A commuter keeps a record of his morning journey time over several months, and records the following results:

Length of journey (mins)	20-	30-	40-	50-	60-	70-	80-90
No of days	21	34	50	24	12	6	3

- Calculate the mean journey time.
- Draw a histogram displaying the above data.
- Use your histogram to estimate the median journey time.
- Assuming these results are typical, what is the probability that tomorrow the commuter's journey will take less than 35 minutes?
- If the commuter allows an hour for the journey, on what percentage of days will he be late?
- He is told that he must reduce his percentage of late arrivals to 4%. On the basis of the above figures, how long should he allow for his journey?

3) A dental practice has been trying to reduce patients' waiting times, and since introducing a new system has collected the following data:

Waiting time (mins)	0-	5-	10-	15-	20-	25-30
Number of patients	49	70	45	20	12	4

- Draw a histogram to illustrate this data.
- Estimate what percentage of patients have to wait less than 8 minutes to be seen.
- The practice wishes to put in its publicity the claim that "90% of our patients have to wait less than ___ minutes". Calculate what figure should fill in the blank.
- I have to go to this dentist tomorrow. Estimate the probability that I will have to wait more than 12 minutes?

5) A group of 30 pupils were asked to measure the length of their journey to school. The results (in miles) were as follows:

5.3 3.4 2.0 20.6 0.3 8.8 11.4 14.9 4.8 18.2
 9.1 12.3 15.5 0.8 22.4 4.2 13.1 10.0 24.8 5.8
 3.4 11.2 12.8 11.7 1.2 16.3 12.0 7.4 15.2 13.8

- Find the mean and median of the journey lengths.
- Group the data into classes with a class width of 5 miles (0-5, 5-10, etc), and draw a histogram.
- Find the mean and median of the grouped data. Does the process of grouping result in any loss of accuracy compared to the results from (a)?