Mathematics

Mean and Standard Deviation

1.

The speeds, in nearest miles per hour, of some cars, measured on two city streets are given below.

Street 1:

| 41 | 15 | 4 | 27 | 21 | 32 | 43 | 37 | 18 | 25 | 29 | 34 |

Street 2:

| 28 | 30 | 25 | 52 | 12 | 36 | 6 | 25 | 17 |

For each street, calculate the mean and standard deviation of the speed of the cars.

2.

The table shows information about the ages of 24 students.

Age (years)	Number of students
16	9
17	3
18	8
19	4

Calculate the mean and standard deviation of the ages of the 24 students.

3.

The table shows information about the number of bananas the students in class 1B ate in one week.

Number of bananas	Frequency
0	1
1	6
2	5
3	2
4	7
5	4

Calculate the mean and standard deviation of the number of bananas the students ate in one week.

4.

In a UK government survey in 2000, smokers were asked to estimate the time between their waking and their having the first cigarette of the day. oF heavy smokers, the results were as follows.

Time between waking and first cigarette	1 to 4 minutes	5 to 14 minutes	15 to 29 minutes	30 to 59 minutes	At least 60 minutes
Percentage of smokers	31	27	19	14	9

Times are given correct to the nearest minute.

Assuming that 'At least 60 minutes' means 'At least 60 minutes but less than 240 minutes', calculate estimates for the mean and standard deviation of the time between waking and first cigarette for these smokers. [6]

5.

Sunita and Shelley talk to each other once a week on the telephone. Over many weeks they recorded, to the nearest minute, the number of minutes spent in conversation on each occasion. The following table summarises their results.

Time (to the nearest minute)	Number of conversations
5–9	2
10–14	9
15–19	20
20–24	13
25–29	8
30–34	3

Calculate estimates for the mean and standard deviation of the number of minutes spent in conversation on each occation.

(Question 6 is on the next page.)

6.

The grouped frequency table gives information about the distance each of 150 people travel to work.

Distance travelled (d km)	Frequency
$0 < d \leq 5$	34
$5 < d \leq 10$	48
$10 < d \leq 15$	26
$15 < d \leq 20$	18
$20 < d \leq 25$	16
$25 < d \leq 30$	8

Calculate estimates for the mean and standard deviation of the distance these 150 people travel to work.