

### Exercises 4

1. Compute the mean, mode, range and standard deviation for the following continuous variable:

<b>Class intervals</b>	<b>Frequency</b>
From 0 to less than 2	39
From 2 to less than 4	27
From 4 to less than 6	16
From 6 to less than 8	15
From 8 to less than 10	10
From 10 to less than 12	8
From 12 to less than 14	6

2. The following data represent the number of people visiting a clinic per one hour intervals.

<b>Number of People</b>	<b>Frequency</b>
4 – 5	7
6 – 7	12
8 – 9	23
10 – 11	3
12 – 13	31
14 – 15	13

Compute the mean, mode, range and standard deviation

3. Two Math classes took the same test. The first class had 18 students. Its mean was 70.5. The second class had 33 students and the class mean was 64. Calculate the weighted mean of the test, based on the results of all 51 students.
4. The mean of 100 students' grades was found to be 40. Later, it was discovered that a score of 53 was misread as 83. Find the corrected mean corresponding to the corrected score.

5. State whether the following statements are true or false. Explain your reasoning.
- (a) If one section of 40 students gets an average mean of 60 marks and another section of 60 students obtains a mean of 40 marks, the average mean mark of 100 students is 50.
  - (b) The mean is always an accurate indicator of the center of a set of data.
6. Insurance companies continually research ages at death and causes of death. The given frequency table summarizes ages at death for all people who died from gunfire in America during the week of May 15, 1992 period (based on a Time magazine study).

<b>Age at Death</b>	<b>Frequency</b>
From 16 to less than 26	22
From 26 to less than 36	10
From 36 to less than 46	6
From 46 to less than 56	2
From 56 to less than 66	4
From 66 to less than 76	5
From 76 to less than 86	1

Compute the mean, the mode, the range and the standard deviation

7. In a small bank, the distribution of deposit balances and the number of deposits in a month are as follows:

<b>Deposit Balance (Dollars)</b>	<b>Number of Deposits</b>
0 up to 100	25
100 up to 250	100
250 up to 400	175
400 up to 500	74
500 up to 550	66
550 up to 600	35
600 up to 800	5
800 up to 900	18
900 up to 1000	2
Total	500

Calculate the mean and the mode deposit.

8. Compute the range and the mean for the following distribution, which gives the annual profits of 20 small business firms.

<b>Profits (in thousands of dollars)</b>	<b>Number of firms</b>
60 and under 70	2
70 and under 80	5
80 and under 90	9
90 and under 100	3
100 and under 110	1

9. The given frequency table describes the speeds of drivers ticketed by the city police during a one day period in 1996. These drivers were traveling through a 60-km/h speed zone.

<b>Speed In km/h</b>	<b>Frequency</b>
From 72 up to 74	14
From 74 up to 76	11
From 76 up to 78	8
From 78 up to 80	6
From 80 up to 82	4
From 82 up to 84	3
From 84 up to 86	1
From 86 up to 88	2
From 88 up to 90	0
From 90 up to 92	1

Find the mean speed and the standard deviation of the drivers ticketed.

10. Telephone orders received by a catalogue shopping company during the first 4 hours of a business day are as follows:

	1 <sup>st</sup> hour	2 <sup>nd</sup> hour	3 <sup>rd</sup> hour	4 <sup>th</sup> hour
<b>Number of orders</b>	3	5	7	9

Compute the variance.

11. Find the mean and standard deviation for the following discrete variable:

<b>Size</b>	3-4	5-6	7-8	9-10	11-12	13-14	15-16
<b>Frequency</b>	3	7	22	60	85	32	8

12. Calculate the standard deviation and the mean for the following table:

<b>Size</b>	6	7	8	9	10	11	12
<b>Frequency</b>	3	6	9	13	8	5	4

13. The following data give information on the number of “no shows” on the daily 6:00 p.m. flight from London to Paris for records kept for 60 days.

<b>Number of no shows</b>	<b>Number of days</b>
0	33
1	14
2	6
3	4
4	2
5	1

Compute the mean, the mode, the range and the standard deviation for the above data to 2 decimal places.

14. A survey is carried out on the number of cars owned by different families. The following results are obtained:

<b>Number of cars, <math>x</math></b>	0	1	2	3	4
<b>Number of families, <math>f</math></b>	5	12	14	6	3

Calculate the mean and the standard deviation of the number of cars per family.

15. An investigation of the number of sales made in a month by the sales force of a company is made:

<b>Number of sales, <math>x</math></b>	0-4	5-9	10-14	15-19	20-24
<b>Number of salespeople, <math>f</math></b>	1	5	9	12	3

Find the mean and standard deviation of the number of sales made per person.

16. What can be said about a set of numbers whose mean is 95 and whose standard deviation is 0?

17. The following three sets of numbers each have a mean of 50. Which has the largest standard deviation? Which has the smallest standard deviation? (Do not perform any calculations!)

Set X:      42    46    50    54    58  
Set Y:      40    45    50    55    60  
Set Z:      30    40    50    60    70

18. What would happen to the standard deviation and variance of a set of data if each value was increased by 4?

19. 50 apples taken from an apple tree were measured for size. The results are:

Diameter in cm	8.8	8.9	9.0	9.1	9.2
Number of Apples	7	15	20	5	3

Compute the mean, variance and standard deviation of the diameter of the 50 apples.

20. The number of days it took to recover from a cold was recorded for a group of 50 people:

Days	Number of people
1	3
2	9
3	20
4	12
5	4
6	2

Compute the mean recovery time. What is the variance?