

Problem Set 1

Without using any statistical software, try to work out the following three questions.

1. Find the (i) mean (ii) median (iii) mode for the given sample data.

X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9
32	53	46	67	39	42	46	60	71

2. Find the standard deviation for the given sample data.

X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}
9	13	6	14	8	11	15	10	17	20

3. The annual salaries of 8 workers in US are given in the following data set. Find the mean and standard deviation of the 8 workers. Then assume that the data set has a “bell shaped distribution”, find out the salary interval that 95% workers belong to.

NOTE: unit of the salary is \$10,000

Worker	1	2	3	4	5	6	7	8
Salary	5	4	5.5	6	7.2	8.3	11	10

4. Consider the frequency table below

X	5	10	15	20	25	30	35
f	4	12	16	4	24	32	8

- a. Calculate the following:
 - i. mean
 - ii. median
 - iii. standard deviation
- b. What are the 68, 95, 97.5 and 99th percentiles of this distribution?
- c. Does the 68-95-99 rule work well here? Why or why not?

5. Consider the frequency table below

X	5	10	15	20	25	30	35
f	5	10	15	40	15	10	5

- a. Calculate the following:
 - i. mean
 - ii. median
 - iii. standard deviation

- b. What are the 68, 95, 97.5 and 99th percentiles of this distribution?
- c. Does the 68-95-99 rule work well here? Why or why not?
- d. What is the key difference between the distributions in 4 and 5?

Use EXCEL to finish the following two questions.

6. Try to figure out the mean, median, mode and standard deviation of the data set about the education level between 30 years old and 60 years old people in US.

NOTE: unit of education level is year

5 6 6 6 7 7 7 8 8 9 9 10 10 11 12 12

7. Given the health expense that pay by patients themselves, find out the mean, median, mode and standard deviation.

NOTE: health expense unit is 1 dollar

328 432 576 454 289 963 751 514 608 822

DO PROBLEMS 22, 33 IN CHAPTER 3-2 OF THE BOOK AND 19 IN CHAPTER 3-3.