

## **Chapter 5: Statistics**

### **5.1 3M's**

#### Vocabulary

Central Tendency

Mean

Median

Mode

Range

Outlier

**Example #1:**

The marks on a sample of 10 quizzes (16 possible marks) are as follows:

14, 12, 17, 2, 8, 12, 15, 8, 10, 11

Find the:

- a) Range
- b) Outlier(s)
- c) Mode(s)
- d) Median
  
- e) Mean

Use the calculator to check your answers for Median and Mode

**Example #2:**

For 30 randomly selected high school students, the following IQ frequency distribution was obtained.

<b>IQ Levels</b>	<b>Frequency</b>
80 – 90	2
90 – 100	9
100 – 110	11
110 – 120	5
120 – 130	2
130 - 140	1

Find the:

a) Mode(s)

b) Median

c) Mean

Use the calculator to check your answer for Median

**Assignment:**

1) Determine the mean, median and mode for the following set of values: 1,2, 3,4,4,7

2) The incomes of a sample of 6 local teachers are as follows: \$41 500, \$44 900, \$39 700, \$62 300, \$58 500 and \$53 100. What is the mean, median and mode income of the 6 teachers?

3) Determine the mean, median and mode salaries of the staff listed below:

<b>Staff</b>	<b>Salary</b>
One owner	\$80 000
One manager	\$60 000
Two salespersons	\$48 000
Six technicians	\$44 000

4) The following frequency distributions represents the monthly commission in dollars for 25 car salespersons at a car lot. Determine the mean, median and mode.

<b>Commission in \$</b>	<b>Frequency</b>
$800 \leq x < 1600$	3
$1600 \leq x < 2400$	4
$2400 \leq x < 3200$	6
$3200 \leq x < 4000$	12

5) The following table gives the frequency distribution of the number of orders received each day during the past 50 days at the office of a publishing company. Calculate the mean, median and mode.

Number of Orders	Number of Days
10 – 12	7
13 – 15	12
16 – 18	17
19 – 21	14

6) The mean age of five people is 39. The ages of four of these five persons are 33, 45, 27 and 41. Find the age of the fifth person.

7) A small business has 10 people in total on the payroll.

- 8 workers make \$10 000 per year
- 1 foreman makes \$40 000 per year
- 1 owner makes \$880 000 per year

a) Determine the mean, median and mode for the 10 people.

b) If you were the owner, what type of average would you prefer to use in wage bargaining? Why?

c) If you were a worker, what type of average would you prefer to use in wage bargaining? Why?

8) Consider the data sets

Set I: 5 9 16 10 11

Set II: 11 15 22 16 17

Notice that each value of the second data set is obtained by adding 6 to the corresponding value of the first data set. Calculate the mean of the two data sets, and comment on the relationship between the two means.

9) Consider the data sets

Set I: 5 9 16 10 11

Set II: 10 18 32 20 22

Notice that each value of data set II is obtained by multiplying the corresponding value of the first data set by 2. Calculate the mean of these data sets, and comment on the relationship between the two means.

**Answer Key**

- 1) mean = 3.5, median = 3.5, mode = 4
- 2) mean = \$50 000, median = \$49 000, mode = none
- 3) mean = \$50 000, median = \$44 000, mode = \$44 000
- 4) mean = \$2864, median = \$2800, mode = \$3600
- 5) mean = 16.28, median = 17, mode = 17
- 6) 49
- 7) a) mean = \$100 000, median = \$10 000, mode = \$10 000  
b) owner would prefer mean  
c) employees would prefer median or mode
- 8) Set I = 10.2, Set II = 16.2
- 9) Set I = 10.2, Set II = 20.4