CHAPTER 12: STATISTICS

Measures of Central Tendancy

MODE: the most frequent number
- "à la mode" means on style.
- There may be **NONE** or more than one

MEAN: is the average
- Add all the numbers ÷ how many numbers

MEDIAN: the middle number
- Put numbers in **ORDER**
- If there are **2** numbers in the middle, take average

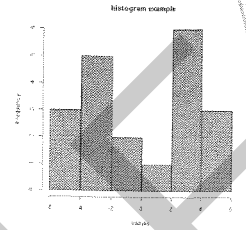| ODD AMOUNT	EVEN AMOUNT
1, 7, 9, 12, 15	1, 7, 9, 12, 15, 19

Measure of Dispersion

Range: biggest number – smallest number

Example: For the following list: **10, 12, 9, 10, 17, 17, 6, 8,** find:

a.) The mode

b.) The mean

c.) The median

d.) The range

Histograms

A histogram is a graph with bars stuck together.

histogram example

EXAMPLE:
Here are the results of Ms. Nassif's Sec 3 Math Class:
55, 56, 56, 59, 62, 68, 70, 71, 71, 71,
74, 76, 80, 83, 86, 87, 90, 92, 93, 95

a) Graph the data into classes in a frequency table.

Classes	Tally	Frequency	Relative Freq (%)

Notes:
Classes:

Tally:

Frequency:

Relative Frequency:

b) Construct a histogram.

Notes:
- A histogram is built with the relative frequency on the y-axis.
- The x-axis may be a broken line, if you want to skip some numbers in the beginning.

c) Questions
1. How many students are in Ms. Nassif's class according to the frequency table?

2. What Percentage of students failed the test?

3. What percent of students obtained greater than 80%?

4. In which class do we find the most results?

Stem and Leaf Plot

EX: 10, 12, 13, 13, 19, 22, 26, 38, 39, 58

Stem	Leaf

Ex: 203, 205, 210, 213, 215, 306, 309, 312, 312

Stem	Leaf

Info from a Table

Type 1

Math Result	Frequency
45	1
55	2
62	6
75	4
88	5
91	2
Total	

MODE =

MEDIAN =

MEAN =

RANGE =

Type 2

Weekly Watched TV	
[0,4[	20
[4,8[	5
[8, 12[	4
[12, 16[	10
Total	39

MODE =

MEDIAN =

RANGE =

MEAN =

MEAN WORD PROBLEMS

<u>TYPE 1: REGULAR MEAN</u>

Sandra's results are as follows:
Term 1 = 45%
Term 2 = 70%
Term 3 = 52%
Term 4 = ?

What mark does she need in the 4th term to pass the year?

<u>TYPE 2: WEIGHTED MEAN</u>

EX 1: Tom's results are as follows:

	Ponderation
Term 1 = 45%	10%
Term 2 = 70%	15%
Term 3 = 52%	25%
Term 4 = ?	50%

What does Tom need to get in 4th Term to obtain 70%

EX 2:

	Homework (10%)	Tests (50%)	Quizzes (40%)	Final Grade
Mary	70	65	72	
John	65	72	70	
Alice	X	60	75	70

a) Who scored better between John and Mary?

b) What did Alice obtain on her homework assignment?

Stratified Sampling Method
Sec 3

Let's say we want to study how many people have colored eyes in the population. Instead of studying the ENTIRE population, we study a sample of the population. However, the type of people we select has to be proportion to that of the population.

For example: if 20% of the population is Asian, we cannot select 50% of the people to be Asian in our sample.

Example: Let's take a stratified sample of the class and make an assumption about the number of color eyes in the school.

Class

	Boys	Girls	Total
Green/Blue			
Black/Brown			
Total			

School

Determine the number of individuals in a population of 1200 students

	Boys	Girls	Total
Green/Blue			
Black/Brown			
Total			

Can we make the same assumptions for the entire population? Why not?

Determine the percentage of each stratum.

	Boys	Girls	Total
Green/Blue			
Black/Brown			
Total			

Box and Whisker Plot

In a box and whisker plot, we put all the data values in the following diagram:

You are dividing your data into 4 groups in which each group contains 25% of the data values.

Creating a box and Whisker

Procedure

Step 1 – Order your values from Small to Big

Step 2 – Find Maximum and minimum value

Step 3 – Find the Median (Q_2)

Step 4 – Find the median of the 1st half of the data values (Q_1)

Step 5 – Find the median of the 2nd half of the data values (Q_3)

Step 6 – Make a # line

Step 7 – Put a dot on max, min, Q_1, Q_2, Q_3

Step 8 – Connect to make a box and whisker plot

BOX AND WHISKER PLOT
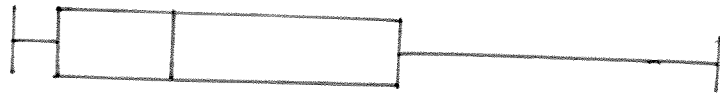
CREATE A BOX AND WHISKER PLOT.

ODD AMOUNT
20, 15, 45, 33, 19, 30, 31, 32, 31, 30, 27, 34, 50, 22, 29

EVEN AMOUNT
20, 15, 45, 33, 19, 30, 31, 32, 31, 30, 27, 34, 50, 22, 29, 30

Facts on Box and Whisker

Interquartile Range:

The 5 # Summary: Min
                 Q1
                 Q2
                 Q3
                 Max

How many #'s in each quarter?

ex

1)   7   3)   15

2)   10   4)   30