MDM 4U

MEASURES OF CENTRAL TENDENCY

Measure	DEFINITION	FORMULA OR METHOD	
		Population	**Sample**
Mean		$\mu = \dfrac{\sum x}{N}$	$\bar{x} = \dfrac{\sum x}{n}$
Median			
Mode			

WEIGHTED MEAN = a measure of central tendency that reflects the relative importance of the data. For instance, a weighted mean is used in calculations of indices. It is also used in the calculation of overall course grades.

$$\bar{x}_w = \frac{\sum w_i x_i}{\sum w_i}$$

MEAN OF GROUPED DATA

$$\mu = \frac{\sum f_i m_i}{\sum f_i} \qquad \bar{x} = \frac{\sum f_i m_i}{\sum f_i} \qquad \text{where } m_i = midpoint\ of\ interval$$
$$f_i = frequency\ for\ that\ interval$$

OUTLIERS = data points that do not follow the general trend of the rest of the data.

For each set of data,

- Decide whether or not the data should be grouped
- Prepare a frequency table, including cumulative frequency
- Determine the mean, median, and mode of the data

EXAMPLE 1:   commuting times to work for a 20-day period

44	39	55	51	49	55	60	39	41	43
48	65	58	50	52	68	40	45	62	50

EXAMPLE 2:   number of errors on a typing test for 30 students

6	3	10	9	6	10	8	1	1	3
9	5	3	4	2	0	7	0	6	9
10	1	3	4	1	8	5	3	9	4

EXAMPLE 3: The following chart indicates the mark obtained and the number of hours designated in each course for four different students. Determine the overall GPA for each student.
The GPA (Grade Point Average) is a weighted mean of a student's courses, where A = 4, B = 3, C = 2, and D = 1.

course	# hours per week	Student A	Student B	Student C	Student D
Math	4	A	B	C	D
English	6	A	B	A	A
Biology	6	B	D	B	C
Chemistry	6	B	C	C	C
Geography	3	C	C	D	A
History	3	C	D	D	B
TOTALS					

EXAMPLE 4: If a high school designates 70% for the term work and 30% for summative work, what percentage does Stefanie need on her final exam to pass each course?

Course	Term work 70%	Summative work 30%	
		Project 15%	Final exam 15%
Math	75%	0%	
English	62%	0%	
Chemistry	43%	60%	
Physics	41%	25%	