Practice Problems #2

1. Out of a total of 45 meeting periods during a semester, the total number of missed classes was recorded for a class for 25 students. Here is the data:

3	5	6	7	7
8	8	9	9	9
10	10	10	10	11
11	11	11	11	12
12	12	13	13	16

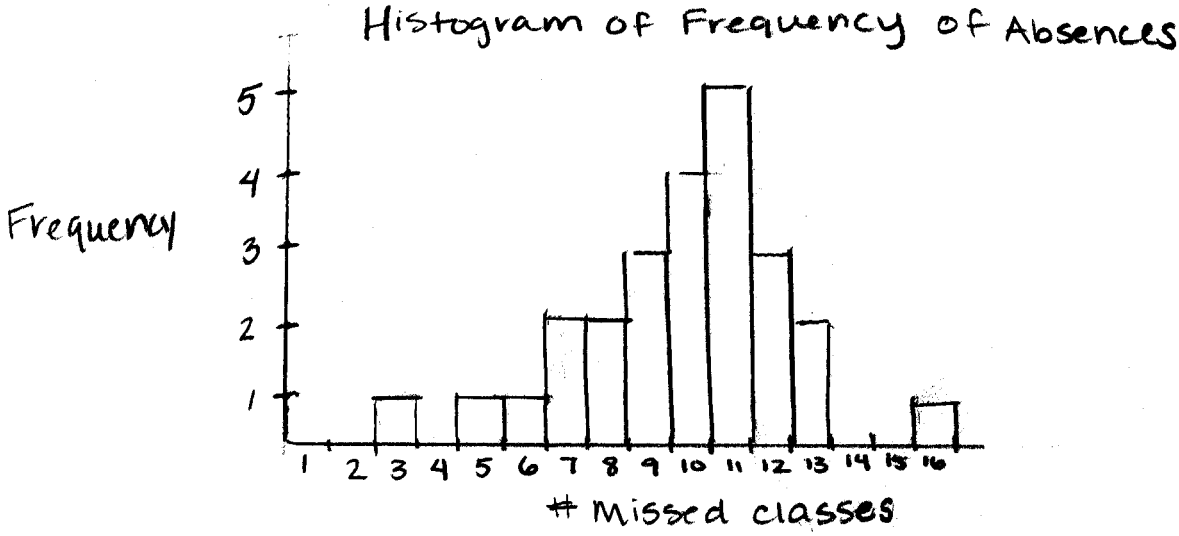
a.) What is the general shape of the distribution for this data (define the skewness, kurtosis, and modality)? For example: a normal distribution is symmetric, mesokurtic and unimodal.

This distribution is negatively skewed, mesokurtic, and unimodal.

b.) Calculate the mode, median, and mean of the data.

Mode = 11, Median = 10, Mean = 9.76

c.) Use the data to graph a histogram.



2. Calculate the cumulative frequency, percentages, and cumulative percentages for the following distribution:

X	f	*cf*	*%*	*C%*
40-49	8	*50*	*16*	*100*
30-39	12	*42*	*24*	*84*
20-29	20	*30*	*40*	*60*
10-19	6	*10*	*12*	*20*
0-9	4	*4*	*8*	*8*

3. Calculate the score for the 50th percentile (median) and the score for the 70th percentile from this grouped frequency distribution:

Score	Freq.	%	C%
65-69	1	5	100
60-64	2	10	95
55-59	2	10	85
50-54	4	20	75
45-49	4	20	55
40-44	2	10	35
35-39	3	15	25
30-34	2	10	10
Total	20	100	

Use this formula from the lecture:

$$\frac{X - LRL}{URL - LRL} = \frac{\% - L\%}{U\% - L\%}$$

49.5 is the 55th percentile
44.5 is the 35th percentile

$$\frac{X - 44.5}{49.5 - 44.5} = \frac{50-35}{55-35}$$

$X = 48.25$ *is the 50th percentile*

54.5 is the 75th percentile
49.5 is the 55th percentile

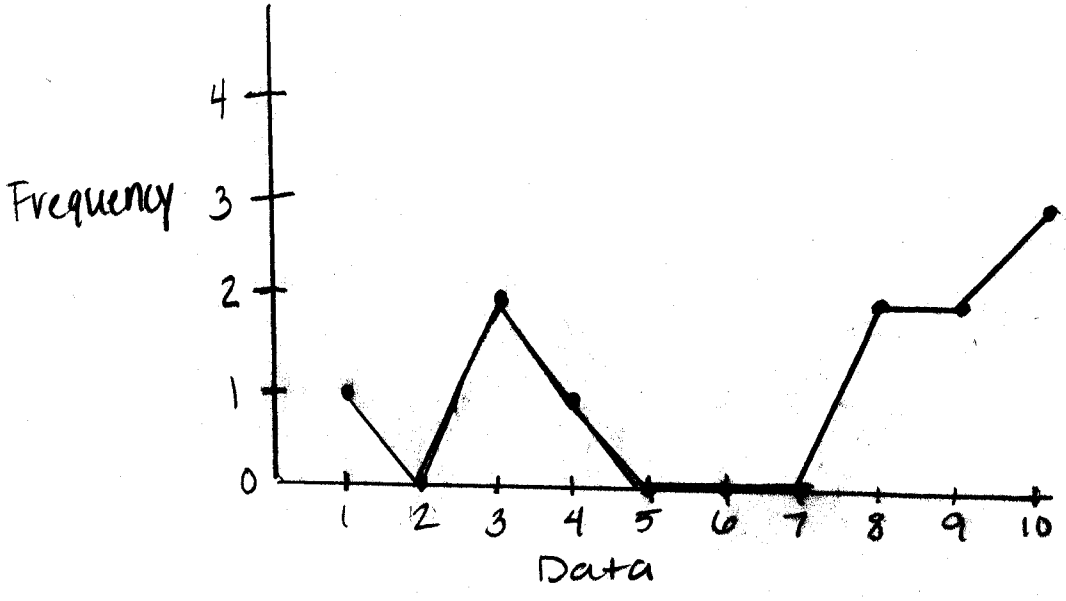
$$\frac{X - 49.5}{54.5-49.5} = \frac{70-55}{75-55}$$

$X = 53.25$ *is the 70th percentile*

4. From the following distribution of scores: 3 8 9 10 4 3 8 9 10 10 1

Construct a frequency distribution polygon.

Frequency Distribution Polygon



5. When a distribution is positively skewed:

a.) Which measure of central tendency is recommended and why?

The median is less influenced by extreme scores than the mean. In skewed distributions, extreme scores (outliers) can impact the mean, so it is a less accurate measure of central tendency for these types of distributions. The median measures the middle score in a distribution, and is not affected by outliers.

b.) Which measure of central tendency is not recommended and why?

The mean is not recommended because skewed distributions have outliers which impact the mean (because the mean takes all scores into account in its calculations).

c.) Draw a positively skewed distribution and indicate where the measures of central tendencies would fall.