Name: __ANSWERS__

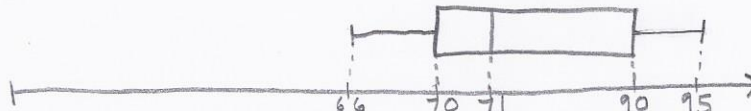__Instructions__: Use your own scrap paper. Write your answers in the space provided.

1. The scores that 7 students earned on a math exam are as follows: 66, 71, 95, 71, 90, 70, 80. Find:

(i) The mean: __77.57__   (ii) The mode: __71__

(iii) The median: __71__   (iv) The standard deviation: __11.12__

(b) Draw a box-plot of the data. Include the median in each half when computing the quartiles.
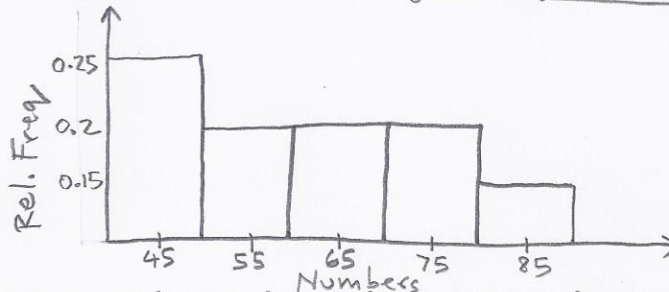

2. Consider the list of 20 numbers: 47, 52, 41, 43, 68, 75, 77, 63, 72, 67, 44, 51, 40, 59, 71, 83, 82, 57, 60, 85.

(a) Using bins of size 10, fill out the frequency table below.

Bin	Frequency	Relative Freq.	Cum. Freq.
[40,50)	5	$\frac{5}{20}=0.25=25\%$	5
[50,60)	4	$\frac{4}{20}=0.2=20\%$	9
[60,70)	4	$0.2=20\%$	13
[70,80)	4	$0.2=20\%$	17
[80,90)	3	$\frac{3}{20}=0.15=15\%$	20
Total	20	$1=100\%$	20

(b) Draw a histogram of the data: Histogram of the 20 numbers

(c) Use the estimation techniques done in class to estimate the mean __63__, median __60__, and standard deviation __14.4__ for the data set. FYI: actual mean=61.85, median=61.5, stddev=14.69

62.5 acceptable.

__Bonus:__ For bivariate data sets, define the covariance of the variables x and y:

$$c_{xy} = \frac{(x_1-\bar{x})(y_1-\bar{y}) + (x_2-\bar{x})(y_2-\bar{y}) + \ldots + (x_n-\bar{x})(y_n-\bar{y})}{n-1}, \quad n>1 \text{ is the \# of data points.}$$