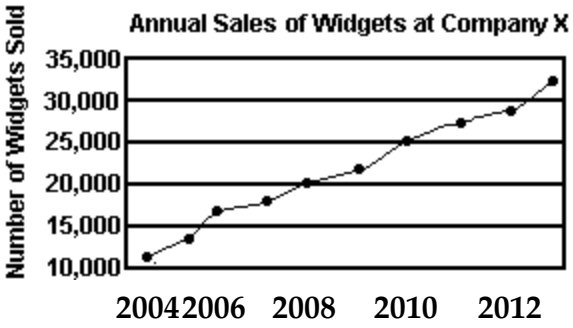
Math 1040 Test #1 Name_____

You may use a calculator and the provided pages from the textbook formula card. No other notes are permited. Any device that connects to the internet is not allowed.

Please carefully and completely show any appropriate work to receive full credit. Each problem is equally weighted.

1) Use complete sentences to briefly explain what is misleading about the graphic.



2) Find the mean, median, and mode of the following statistic students' test scores:

71 74 67 71 64 72 71 65 66 69

mean = _____

median = _____

mode = _____

3) The costs of a random sample of college textbooks (in dollars) are given in the stem–and–leaf plot below.

Stem	Leaves
2	2
3	2
4	0 9
5	0
6	5 8
7	6 9
8	6 7 9
9	2 3 8
10	5 9

Legend: 2|2 represents $22

a) Find the five number summary for this data set. Include the name or correct symbol for each of the numbers as well as its value.

b) Draw a boxplot for this data set.

4) The amount of television viewed by today's youth is of primary concern to Parents Against Watching Television (PAWT). 300 parents of elementary school–aged children were asked to estimate the number of hours per week that their child watched television. The mean and the standard deviation for their responses were 16 and 4, respectively. PAWT constructed a stem–and–leaf display for the data that showed that the distribution of times was a bell–shaped distribution. Give an interval around the mean where you believe most (approximately 95%) of the television viewing times fell in the distribution.

A) between 12 and 20 hours per week
B) less than 12 and more than 20 hours per week
C) between 8 and 24 hours per week
D) between 4 and 28 hours per week

Construct the specified histogram.

5) A random sample of 20 high school students is selected. Each student is asked how much time he or she spent on the Internet during the previous week. The following times (in hours) are recorded:

9	2	10	5	6	6	6	3	7	5
5	8	8	7	12	2	6	6	5	10

a) Create a frequency and relative frequency table for this data. Use 2 as the lower class limit of the first class, and use a class width of 3.

Class	Tally	Frequency	Relative Frequency

b) Create a frequency histogram for the data. Be sure to label your axes.

6) Use complete sentences to discuss the meaning of, and difference between the terms **response bias** and **nonresponse bias.**

7) Sketch the shape of a histogram, or a boxplot, or a continuous curve that represents data that is skewed to the right.

8) For the following sample data, approximate the mean and the standard deviation for the number of emails received per day. Round to the nearest tenth if necessary.

Emails (per day)	Frequency
8–11	3
12–15	34
16–19	31
20–23	8
24–27	27

mean = _____

standard deviation = _____

9) A fast–food chain has 23 locations in a certain city. Seven of the locations are randomly selected and the number of days of sick leave taken in the previous quarter by all of the employees at those 7 locations is recorded.

(a) Are the values obtained **discrete** or **continuous**? (*please circle your answer*)

(b) Identify the level of measurement (**nominal, ordinal, interval, ratio**) for the sample data. (*please circle your answer*)

(c) Which type of sampling (**simple random, systematic, convenience, stratified, cluster**) is being used? (*please circle your answer*)

(d) If the average (mean) number of days of sick leave is calculated from the collected data, is the result a **statistic** or a **parameter**? (*please circle your answer*)

(e) Would you consider this an **observational study** or an **experiment**? *(please circle your answer)*

10) The data below are the number of hours worked (per week) and the final grades of 9 randomly selected students from a drama class.

Hours worked, x	3	6	9	7	12	5	18	11	8
Final Grade, y	80	85	79	81	72	73	54	75	81

i) Calculate the linear correlation coefficient. Round to the nearest thousandth.

ii) Is there are linear relationship between the number of hours worked and the final grade in the drama class? Briefly explain/justify your answer.

11) Using the SAME data as question #10:

i) Find the equation of the regression line for the given data, rounding your values to the nearest hundredth.

ii) Interpret the slope.

ii) Is it reasonable to use the regression line to predict the final grade for a student who worked 40 hours per week? Why or why not?

12) Which of the following statistics is least resistant?

A) Interquartile Range
B) Standard Deviation
C) Median
D) Mode

13) A student scores 56 on a geography test and 285 on a mathematics test. The geography test has a mean of 80 and a standard deviation of 20. The mathematics test has a mean of 300 and a standard deviation of 10. The data for both tests are normally distributed.

i) Calculate the z−score for each test score.

ii) On which test did the student score better relative to the other students in each class?