Elementary Statistics for Business
Test 1, Fall 2010
Name:………………………………………..
8+10+8+14+11+8+10+10+4+10+2+2+2+2=101

1   State whether each of the following variables is nominal, ordinal, interval, or ratio
      or fill in the blanks.
      (a)   Family income_____
      (b)   Letter grades_____
      (c)   Ethnicity_____
      (d)   Calendar year_____
      (e)   __ _____scale is a list of categories to which objects can be
              classified
      (f)   __ _____scale is a measurement scale in which a certain
              distance along the scale means the same thing no matter where on the
              scale you are, but where "0" on the scale does not represent the absence of
              the thing being measured.
      (g)   __ _____ is a measurement scale that assigns values to objects
              based on their ranking with respect to one another.
      (h)   __ _____ scale is a measurement scale in which a certain
              distance along the scale means the same thing no matter where on the
              scale you are, and where "0" on the scale represents the absence of the
              thing being measured. Thus a "4" on such a scale implies twice as much
              of the thing being measured as a "2."

2   Consider the following data.

              2.6, 3.3, 3.8, 4.1, 3.5, 2.7, 3.5, 3.6, 3.6, 4.0

      (a)   Construct a **double** stem-and-leaf display.

              $n =$
              SU=
              LU=
      (b)   Calculate the mean. Show your work!

      (c)   Find the mode.

3   Suppose you are driving to Arizona. On your way you pump gas from three gas stations and the summary data is given below. Find the average cost of a gallon on your trip. Show your work!

State	Number of Gallons	Price per Gallon	
Joplin	13	$2.60	
Oklahoma	12	$2.50	
Texas	15	$2.40	
New Mexico	14	$2.80	

4   Following table presents results of a recent salary survey of business graduates.

Class	Frequency	Relative Frequency
25-29	3	
30-34	18	
35-39	25	
40-44	13	
45-49	1	

Find the following, fill in the blanks for relative frequency, and draw a histogram:

(a)   Class mark of the class 35-39.

(b)   Class **boundaries** of the class 35 -39.

(c)   Class interval.

(d)   Draw a histogram.

5   Percentage growth in sales during the second quarter of 2002 for 10 companies
       are given below.

1.22	0.57	1.25	4.78	-0.55
1.25	3.63	1.00	-1.88	0.25

(a)   Find the five number summary.
(b)   Draw a box plot. Include all the details discussed in class.

6   On five tests, one student averaged 68.3 with a standard deviation of 2.8, while
       another student averaged 78.8 with a standard deviation of 5.3. Which student is
       relatively more consistent? Show your work!

7   Consider the following sample of data: 2, 5, 3, 7, 1, 8, 9.

Find the following.

     (a)   Range._____

     (b)   Variance._____

     (c)   Standard deviation._____

8   Among the 20 candidates for four positions on a city council, 10 are **Democrats**, 6 are **Republicans**, and 4 are **Independents**. In how many ways can the 5 councilmen be chosen so that 3 are Democrats, 1 is a Republican, and 1 is an Independent? **Simplify the answer.**

9

Boxplot of Variable 1, Variable 2
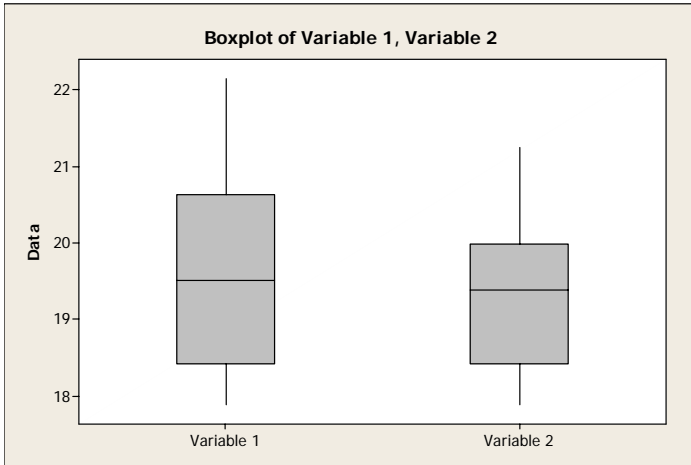
(a)   Which variable has a bigger variance?

(b)   What is the first quartile of the variable 1?

(c)   What does the line across the box represent?

(d)   In the second variable roughly what percentage of data is in between 18.4 and 20?

10 Following information is given about two persons on a reducing diet. Which one is relatively over weight?   Show your work!

Person	Mean weight of the his/her height group	Standard deviation of the weight of his/her height group	Person's weight
First	146	14	178
Second	160	17	193

11   According to the empirical rule, for a bell shaped curve there will be
      approximately _____ percent of the data within two standard deviation
      about the mean.

12   A scientist is studying about woodpeckers in Arkansas. He has trapped 49
      woodpeckers for a study.

      What is the population of his study?

      What is his sample?

13   What are the differences between mean and median?

14   If we assume that the data came from a bell shaped distribution, what percentage
      of the data is in between Q_1 and Q_3?