

Statistics – Spring 2015
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Your Name_____

1. Indicate whether each of the following statements typifies *descriptive* **or** *inferential* statistics:
 - a) On the average, students in my statistics class are 20 years old.
DESCRIPTIVE
 - b) It was projected that the world's population will exceed 6 billion by the year 2000 **INFERENCE**
 - c) Four years is the most frequent term of office served by U. S. presidents.
DESCRIPTIVE
 - d) A recent poll indicates 74 percent of all Americans favor capital punishment. **INFERENCE**
 - e) Children with no siblings tend to be more adult-oriented than children with one or more siblings. **INFERENCE**
2. Indicate whether the following observations are *qualitative* **or** *quantitative*:
 - a) Height - **QUANTITATIVE**
 - b) Religious affiliation - **QUALITATIVE**
 - c) Math aptitude score **QUANTITATIVE**
 - d) Years of education **QUANTITATIVE**
 - e) Military rank **QUALITATIVE**
 - f) Favorite TV program **QUALITATIVE**
 - g) Place of birth **QUALITATIVE**
 - h) Grade point average **QUANTITATIVE**
 - i) Daily intake of calories **QUANTITATIVE**
 - j) Highest academic degree **QUALITATIVE**

3.

120	153	186	117	140	165	125	128	129	120	123
132	111	117	93	205	130	112	120	180	150	130
120	140	118	130	126	166	110	112	110	185	105
112	132	125	150	116	95	145	119	135	118	139
150	125	112	116	114	125	117	116	95	209	73
16	39	97	15	66	23	59	32	42	44	47
65	25	53	69	50	41	65	36	72	28	

Use the data above to describe the neighborhood drive to collect funds for underprivileged children. Be original.

- What kind of data is presented? **UNGROUPED QUANTITATIVE DATE**
- Indicate the class in which each observation falls. **0 – 200 (20s)**
- What is the shape of the curve? **NORMAL**
- Find the frequency distribution
- What is your cumulative frequency? **76**

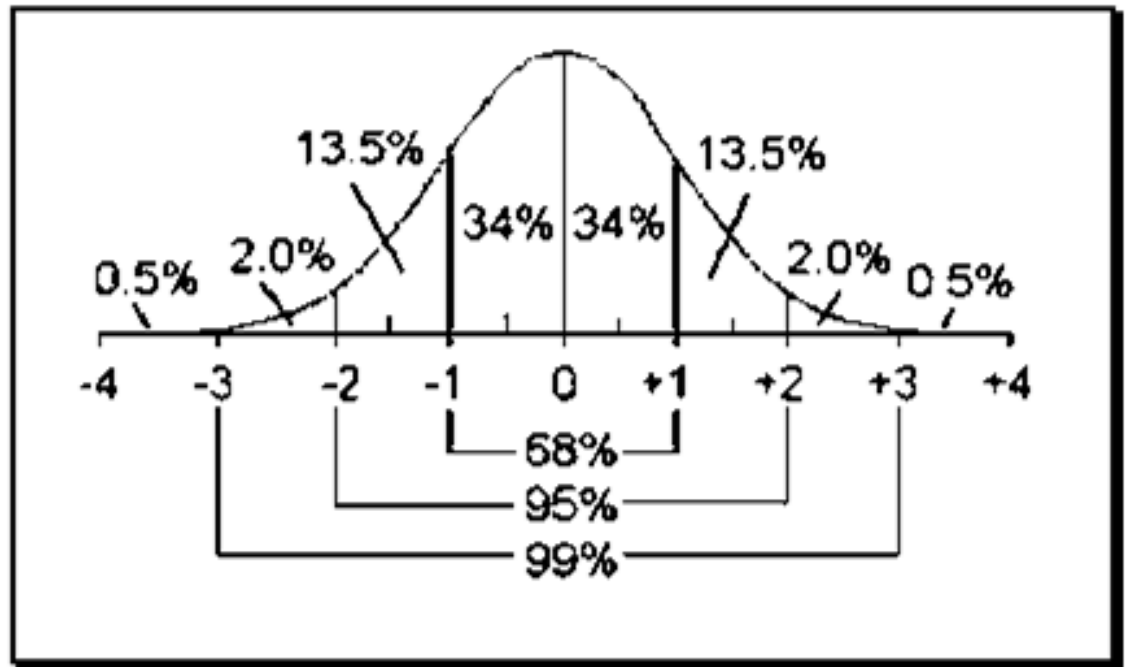
HINT: *Stem & Leaf*

d) 0 – 19 = 2; 20 – 39 = 6; 40 – 59 = 7; 60 – 79 = 6; 80 – 99 = 4; 100 – 119 = 17; 120 – 139 = 20; 140 – 159 = 7; 160 – 179 = 2; 180 – 199 = 3; 200 – 219 = 2

4. Draw a Standard Normal Curve and show the following:

- The mean = **0**
- Standard deviation = **1**
- Upper and lower halves with values = **r= .50; l= -.50**

- d) The number of z-scores on either side
- e) The proportions in columns B and C and the value



5. Compute the range, mean, median, and mode for the following:

2 17 5 2 28 7 2

Range = 26; Mean = 9; Median = 5; Mode = 2

6. Use the *Definition Formula* to compute the Standard Deviation:

12 10 11 8 9 11 9 = **1.3**

7. Use the *Computation Formula* to compute the Standard Deviation:

9 11 12 10 8 11 9 = **1.3**

8. Use the *Definition* or *Computation* Formula to find the standard deviation:

1 3 7 2 0 4 7 3 = **2.34**

9. Express each of the following scores as a z score:

- a) An IQ of 135, given a mean of 100 and a standard deviation of 15 = **2.33**
- b) A verbal score of 470 on a Scholastic Assessment Test (SAT), given a mean of 500 and a standard deviation of 100. **-3.3**
- c) A daily production of 2100 units, given a mean of 2180 units, and a standard deviation of 50 units. **-1.6**
- d) A height of 68 inches, given a mean of 68, and a standard deviation of 3. **=0**
- e) A meter-reading error of -3 degrees, given a mean of 0 degrees, and a standard deviation of 2 degrees. **=-1.5**

10. Use Table A to find the proportion of the total area identified with the following statements:

- a) Above a z score of 1.80 **=.0359**
- b) Between the mean and a z score of -0.43 **=-.1664**
- c) Below a z score of -3.00 **=-.00005**
- d) Between the mean and a z score of 1.65 **=.4505**
- e) Above a z score of 0.60 **=.2743**
- f) Below a z score of -2.65 **=-.0040**
- g) Between a z score of 0 and -1.96 **=-.4750**

11. Employees of Corporation A earn annual salaries described below. Find the median salary and identify any outlier(s).

\$34,999 \$134,999 \$75,000 68,745 \$86,745
 \$62,888 **= \$71,872.50**

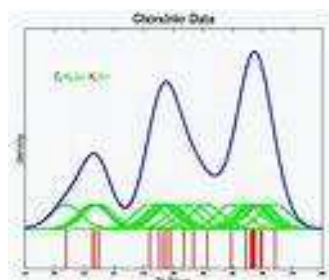
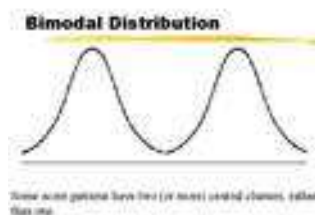
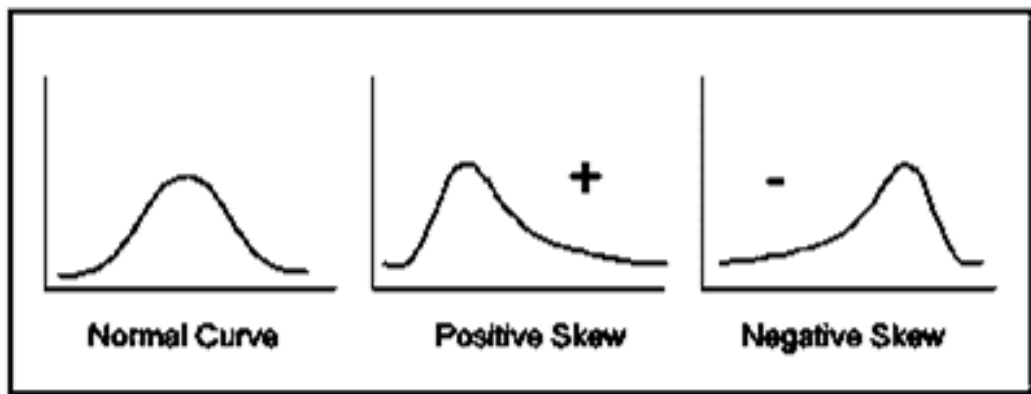
12. The two main subdivisions of statistics **Descriptive** and **Inferential**

13. Researchers use three types of data:

- a) **QUALITATIVE** _____
- b) **QUANTITATIVE** _____
- c) **MIXED** _____

14. Draw and label the following curves:

- a) Standard normal curve
- b) Positively skewed curve
- c) Negatively skewed curve
- d) Bi-modal curve
- e) Multi-modal curve



STANDARD NORMAL CURVE

To identify a particular normal curve, you must know the (a) **mean** and (b) **...standard deviation...** for that distribution. To convert a particular normal curve to the standard normal curve, you must convert original observations into (c) **...z-score**. A z-score indicates how many (d) **...standard deviations** an observation is (e) **...above** or (f) **...below** the mean of the distribution. Although there are infinite numbers of normal curves, there is (g) **...one** standard normal curve. The standard normal curve has a (h) **...mean** of 0, and a (j) **standard deviation** of 1. The total area under the standard normal curve equals (j) **...one**. When using the standard normal table, it is important to remember that for any z-score, the corresponding proportions in columns B and C always sum to (k) **.5000 or half**, furthermore, the proportion in column B always specifies the proportion of area between the (l) **mean** and the z-score, while the proportion in column C always specifies the proportion of area (m) **beyond** the z-score. Although any z-score can be either positive or negative, the proportions of area, specified in columns B and C, are never (n) **negative**.