AFM Review Sheet Univariate Data

## The following topics will be on the test:

- Quantitative vs. Qualitative
- Standard Deviation
- Histograms and their meaning
- Measures of central tendency
- o Box plots and their meanings
- Comparing box plots

## 2. Label the following variables as quantitative or qualitative in the given survey questions.

- a. What is your ethnic background? qualitative
- b. What is your birth year? quantitative
- c. How many pets do you own? quantitative
- d. What is one event you did over Spring Break? qualitative
- e. How old were you when you said your first word? quantitative
- f. Which tax bracket does your family's income fall into? qualitative
- g. How long does it take you to go to school? quantitative
- h. How many M & M's do you think are in a bag? quantitative
- i. When was the last time you flossed your teeth? quantitative
- j. What are you plans after high school? qualitative

3. In the given questions of Number 2, label the variable as continuous, discrete, ordinal, or categorical.

- a. categorical
- b. discrete
- c. discrete
- d. categorical
- e. discrete
- f. ordinal
- g. continuous
- h. discrete
- i. continuous
- j. categorical

## 4. Sketch a histogram that is Answers vary

a. skewed left b. skewed rig	t c. symmetrical	d. contains a possible outlier
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- 5. Choose the measure of central tendency that would *best* describe the following scenarios.
  - a. The price of apartments in the Legacy apartment complex. Mean
  - b. The age of the people at the nursing home. Mean
  - c. The age of people at the symphony. Median
  - d. The grades of all of Mr. Maxwell's classes. Median

5. A survey was conducted asking students their soft drinks. Create a frequency table for the data given below.

Pepsi	Coke	Mountain	Root Beer	Root Beer	Sprite
		Dew			
Mountain	Coke	Coke	Coke	Pepsi	Sprite
Dew					
Root Beer	Root Beer	Mountain	Sprite	Root Beer	Pepsi
		Dew			
Pepsi	Coke	Coke	Coke	Sprite	Mountain
					Dew
Mountain	Mountain	Pepsi	Pepsi	Coke	Mountain
Dew	Dew				Dew
Root Beer	Pepsi	Mountain	Coke	Coke	Mountain
		Dew			Dew

Soft Drink	Frequency	Relative Frequency
Pepsi	7	19.4%
Mountain Dew	9	25%
Root Beer	6	16.7%
Sprite	4	11.1%
Coke	10	27.8%

6. The following data was observed by a hotel receptionist at Embassy Suites as the number of people who check into the hotel each hour in the day. Given the following data, determine the mean and the standard deviation.

3,8,7,5,1,2,4,3,7,9,11,13,10,2,3,4,5,3,6,3,4,1,2,5

a. Mean:\_\_\_\_\_\_5.04\_\_\_\_\_b. Standard Deviation:\_\_\_\_\_3.24\_\_\_\_\_

c. Use the same data to create a normal curve that shows the distribution of the number of people who check into the hotel every hour.



## 7. Create and use two histograms to compare the girl's data and the boy's data below. Make conclusions on your findings.

Mr. Brown's math class has 10 girls and 10 boys. Test grades for the most recent test are listed below.

Boys	86	85	34	98	52	68	75	72	84	92
Girls	81	80	80	88	80	86	78	74	71	75



# of Boys

Girls in Mr. Brown's Class



The histogram for the boys in Mr. Brown's class is skewed right. The histogram for the girls contains a possible outlier...etc.

140	142	156		
160	143	150		
151	159	159		
142	149	149		
162	151	158		
158	157	160		
161	170	150		
149	149	151		
153	157	148		
153	150	162		
Students Arm Span (cm)				

141	144	150		
161	143	151		
153	157	160		
140	145	145		
160	151	157		
157	152	161		
161	171	142		
148	140	151		
150	155	150		
150	146	160		
Students Height (cm)				

In theory, a person's height is the same as their arm span. Using the data compiled in Mr. Maxwell's AFM class, do you agree or disagree with this theory? Create two box plots to support your answer. Be specific and detailed.



In theory, the students' arm span and height are the same because the minimums and maximums are similar, if not equal, as in the case of the minimums. The medians are almost equal, and the means of both data are similar. The mean of the students' arm span is 153.3, and the mean of the students' height is 151.73. In addition, the standard deviations of the data sets are similar. For arm span, the s.d. is 6.98, and for height the s.d. is 7.66. The ranges for both data sets are close. The range for the students arm span is 30 cm, and the range for the students' height is 31 cm. Therefore, we can conclude the students height is very close to their arm span.

8. During the Spring of 2005, Mr. Maxwell's 4<sup>th</sup> period AFM class measured their height and measured their arm span in centimeters. Listed in L1 are the heights of every member of his class. In L2 are the arm spans of every member of his class.