

Name: _____

Note: Show all work. Correct answers without support will receive **at most** half credit.

1. (3pts) Characterize each variable as qualitative or quantitative. If appropriate, further classify the variable as discrete or continuous.

(a) ratings of terrible, below average, average, above average, and superior

(b) maximum depth of a pond

2. (2pts) To obtain a sample of people who work in the Empire State building you randomly select five of the 102 floors and sample all of the people who work on these floors. What type of sampling method is this?

3. (5pts) Soccer players on the US men's team have a mean weight of 170 pounds with a standard deviation of 18 pounds. Players on the US women's team have a mean weight of 130 pounds with a standard deviation of 12 pounds. Who weighs less relatively, DeMarcus Beasley (135 pounds) or Amy Rodriguez (108 pounds)?

4. (4pts) Complete the following sentences.

(a) Any graphic display of statistical data must be _____.

(b) A good sample must be _____.

5. (17pts) The number of classes being taken this coming Fall by six Millersville students are 1, 3, 5, 7, 2, 5.

(a) Find:

i. mean

ii. median

iii. mode

iv. range

(b) Use the table below to calculate the standard deviation. $s = \sqrt{\frac{\sum(x-\bar{x})^2}{n-1}}$.

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6. (24pts) Twenty-eight lawn mowers were allowed to run until their gas tanks were empty. The mean was $\bar{x} = 60.9$. The standard deviation was $s = 13.6.8$. The sorted times in minutes were recorded as follows.

27	30	42	43	45	48	51	59	60	62	62	63	63	65
65	66	66	66	67	67	68	69	71	71	71	72	81	85

(a) Based on established guidelines, choose two appropriate sets of number of classes and class width for a frequency table. Show how you got your answers.

(b) Create a frequency table with the data. Ignore what you did in part (a). Start the first class with 26 and use a class width of 15.

(c) Construct a relative frequency histogram.

(d) Would you consider any of the recorded times unusual? Explain.

7. (10pts) Following is an ordered list of the alcohol content (percent) in a sample of 17 beers sold in Lancaster county.

2.63 2.88 3.02 3.10 3.63 3.69 3.78 4.00 4.05
4.15 4.42 4.69 4.88 5.02 6.13 6.18 7.22

(a) Find P_{18} $i = \frac{k}{100}(n + 1)$

(b) Create a five number summary of the data.

8. (10pts) Circle True or False

- T F The median is drastically affected by outliers.
- T F A statistical measure of a population is called a parameter.
- T F A volunteer sample is an unbiased sampling method.
- T F A large sample is a good sample.
- T F If two samples have the same sample mean the samples are similar.