

Provide answers only in space provided, do not attach additional sheets.

Write clearly to ensure full credit for your answers. Write the first letter of your surname in box above.

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(1) For the following questions, consider a data set that exhibits a normal distribution. Report the answers to the nearest 0.01%.

- (a) How much of the data lies below the value corresponding to  $Z = 1.1$ ? \_\_\_\_\_ %
- (b) How much of the data lies between the values corresponding to  $Z = 1.1$  and  $Z = 1.3$ ? \_\_\_\_\_ %
- (c) How much of the data lies between the values corresponding to  $Z = -1.1$  and  $Z = 1.3$ ? \_\_\_\_\_ %

(2) For the following questions, consider a data set that exhibits a normal distribution. Report the answers to the nearest 0.01.

- (a) What is the Z score for the value that is larger than 20.9% of the data?  $Z =$  \_\_\_\_\_
- (b) What is the Z score for the value that is smaller than 11.9% of the data?  $Z =$  \_\_\_\_\_
- (c) Consider a portion of the data bounded above and below by certain Z scores. If we consider a region bounded below by  $Z = 0.4$ , what is the Z score of the upper bound if the region contains 23.9% of the data?  $Z =$  \_\_\_\_\_

(3) Consider a set of 900 of normally distributed data values with a mean of 25 and a standard deviation of 5.0

- (a) How many values are larger than 27.00 (report answer to the nearest integer) # = \_\_\_\_\_
- (b) How many values are between 23.00 and 28.00? (report answer to the nearest integer) # = \_\_\_\_\_
- (c) What is your best estimate for the value of Q3? (report answer to the nearest 0.01) Q3 = \_\_\_\_\_

(4) Imagine that we take a sample from a population of interest. For the following questions use the sample values to the right:

Sample data

16	22
21	17
20	21
16	22

Assume that this sample accurately reflects the mean and standard deviation of the population so you can use the normal distribution and Z scores for the problems below. (If you've read ahead in your book or lab manual you know we should really use t scores, don't worry about this right now, use the Z scores)

- (a) Assuming that the population data is normally distributed, what is the value that you expect 67% of the data in the population to be smaller than? (round to nearest 0.01) Val. = \_\_\_\_\_
- (b) What is your best estimate for the IQR of the population data? (round to nearest 0.01) IQR = \_\_\_\_\_