Math 156 X01
Assignment 4

Covers: Sections 6.1-6.4, 8.1
Due: Thurs March 19 at 8:30am

INSTRUCTIONS:
This assignment will be marked for completion.
Solutions will be posted on the course website 24 hours after the deadline.
You may not copy the work of another person or AI.
Submit jpg or pdf files to the D2L Dropbox.

1. A sample has five measurements: $12, 21, 9, 14, k$.

a) Find k so that the mean of the sample is 18.
b) Find the median of the sample.

2. What happens to the mean, median, range and standard deviation if:

a) every measurement in a data set is increased by 10?
b) every measurement in a data set is multiplied by 10?

3. The mean of a population is 48 and the standard deviation is 12. Find the range in which at least 84% of the measurements fall.

4. Maria and Bo both work on large teams at different companies. Maria earns a salary of $\$95,000$. The salaries among Maria's team have a mean of $\$89,000$ and a standard deviation of $\$3,000$. Bo earns a salary of $\$75,000$. The salaries among Bo's team have a mean of $\$65,000$ and a standard deviation of $\$4,000$.
a) Calculate the z-score for Maria's salary.
b) Calculate the z-score for Bo's salary.
c) Which person earns more relative to their team?

5. A password is 6 symbols long and can use capital letters A,B,...,Z. How many possible passwords are there if:
a) you can repeat symbols?
b) you can't repeat symbols?
c) you can't repeat symbols and the first symbol must be M?

6. A password is 5 symbols long and can use numbers 0,1,...,9 as well as lowercase letters a,b,...,z.
a) How many possible passwords are there?
b) How many passwords contain only letters?
c) How many passwords contain at least one number?