

## Math 1070 Exam 1

Name:

No outside materials allowed except pens or pencils and a calculator. Keep your eyes on your own paper and turn your test in when you are finished. You have all class period to finish the test. Remember to label all graphs, plots, and charts. **SHOW ALL WORK.**

1. Let  $X$  be a random variable with the probability distribution given below.

$$P(X = 5) = .5 \quad P(X = 6) = .3 \quad P(X = 7) = .1 \quad P(X = 8) = .05 \quad P(X = 9) = .05$$

**2.**

a) Find the Median and the Mean of the data below.

b) Is the data skewed? Explain.

c) Is there an advantage here in using one of the summaries over the other? Explain.

X: 5 3 2 0 4 15 10

**3.**

- a) Calculate the five number summary from the data below
- b) Construct a Box Plot
- c) Are there any outliers? (Dont guess, calculate them)

X: -8 2 3 4 4 5 6 8 10 17

**4.**

- a) Calculate the Standard Deviation and the Range
- b) What do the standard deviation and the range measure?
- c) Why use the Standard Deviation instead of the Range?

Y: 5 7 5 13

**5.**

- a) Construct a scatter plot
- b) Compute the correlation
- c) Describe the relationship between the two variables.

X: 1 2 3

Y: 1 1 0

$S_X = 1$ ,  $\bar{X} = 2$ ,  $S_Y = .577$ ,  $\bar{Y} = .667$