Name: _____ **MAT 121**
Summer 2018 **Homework 4**

Problem 1: If 7 people are running in a race, how many different first, second, and third place finishers are possible?

Problem 2: If you have 10 people available for a project, how many different groups of three people can you create from these ten people?

Problem 3: How many unique 'words' (meaning writing letters in order, i.e. from 'can' you can form the 'words': 'can', 'cna', 'nca', 'nac', 'anc', and 'acn') can you form from the word 'Mississippi'? How about the word 'achalasia'?

Problem 4: Consider the following chart describing a collection of numbers with associated probabilities:

x	-1	0	2	3	17	22.23
$P(x)$	0.18	0.06	0.24	0.33	0.16	0.03

(a) Does this table represent a probability distribution? Explain.

(b) Find the expected value, i.e. the mean, for this table.

(c) Find the standard deviation for this dataset.

Problem 5: You are at a fair and there is a booth with a game. A wheel with the numbers 1 through 100 are on the wheel, each evenly spaced. If the spinner lands on 100, you win \$100, if the hand lands on the numbers 1–50, you have to pay \$2, and if the hand lands on 51–99, you win \$1. If you must pay \$0.50 to play the game each time you want to play, should you play this fair game?