STAT 441 - Mathematical Statistics I
Due: Monday (at the start of class), Sept. 11, 2017

Instructions: *Include all relevant work to get full credit.*

Homework 1

1. If 3 English, 4 Mathematics, and 5 History textbooks are randomly placed on a display shelf, what is the probability that all the Mathematics books are together? *Round your final answer to 4 decimal places.*

2. How many nonnegative integer solutions are there for the equation, $x + y + z = 10$? [Hint: Example solutions are: $(x = 2, y = 3, z = 5)$ or $(x = 4, y = 0, z = 6)$.]

3. If 10 people (7 women and 3 men) are to be seated in a circular table, how many possible different arrangements are there if

a. there is not restriction?

b. the men have to be together?

c. no two men can be next to each other?

4. Suppose in a lot of 20 missiles, 6 are defective and will not fire. If 5 are chosen at random to be fired, what is the probability that

a. exactly 2 will not fire? *You can leave your answer in combination form.*

b. at most 2 will not fire? *You can leave your answer in combination form.*

c. at least 1 will not fire? *Compute the actual value.*