MA 385-04 Name _____
Dr. Johnson Fall 2018

General Homework Policies (applicable to all HW assignments):

- Homework is due at the time and on the date listed on each assignment. You may turn it in at the beginning of class time, bring it to my office before class, or scan and email to me by the deadline.
- Homework received after 1:00pm is considered late but is accepted for 75% credit up to 24 hours after the deadline.
- Students are encouraged to work together on their assignments. However, when it comes to writing up your final solutions to be turned in, everyone must go to "opposite corners".
- Please write on only one side of the paper.
- Papers that are copied all or in part from other papers will result in a grade of 0 for all papers involved. Solutions that are copied from Chegg or other internet sources are prohibited.
- It is your duty to make sure your solutions cannot be misunderstood or left open to interpretation as to what you intended. You will be graded only on what is written, not on what you might have been thinking. Things that may seem obvious to you are not always obvious to the reader, so show all steps leading toward the solution.

HW #2 This assignment is due Sept. 4 at 1:00pm

1. A maintenance man has 12 keys on his key ring. If he tries the keys at random on a storage room door, discarding those that do not work, what is the probability that he will get the door open on his 4^{th} try?

2. Mindy is taking MA 385 this Fall and two sections are offered. She estimates that if she takes Dr. J, her chance of passing the course is 80%, but if she takes Dr. S, her chance of passing the course is only 60%. There is a 40% chance she will get in Dr. J's class, otherwise she will be placed in Dr. S's class. After the semester is over, you learn that Mindy passed MA 385. What is the probability that she was enrolled in Dr. J's section?

3. Kevin, LeBron and Stephen take turns shooting a basketball (in that order) and have probabilities of 0.55, 0.65 and 0.7, respectively, of scoring a basket. Compute the probabilities for each player to get the first basket.

Scroll down for more problems

4. Stan is teaching his son Matthew how to shoot a bow and arrow. They both shoot at the target, and when they check the results, **they find one arrow in the bull's eye**. If the probability that Matthew hits the bull's eye is .3 and the probability that Stan hits the bull's eye is .6, find the probability that **it is Stan's arrow** that hit the bull's eye. Assume shots are independent. Hint: the answer is not 2/3.

5. Suppose you were assigned the following problem:

A carton of eggs has 12 eggs, 4 of which are rotten. Chef Mark and Chef Anne will take turns cracking eggs until someone cracks a rotten egg. Chef Anne will go first. Find the probability that Chef Anne will crack the rotten egg.

You type this problem into Chegg, and the following answer is given:

$$\Omega = \{R, GR, GGR, GGGR, GGGGR, GGGGGR, GGGGGGR, GGGGGGGR, GGGGGGGGR\}$$

There are 9 possible outcomes for this experiment, and in 5 of these outcomes Chef Anne cracks the rotten egg, so the probability that Chef Anne will crack the rotten egg is $\frac{5}{9}$.

Do you think the answer provided by Chegg is correct? If not, what is wrong with the reasoning used to get this answer?