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 48 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".
- 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 #1 This assignment is due Tuesday August 28 at 1:00pm

1. An experiment consists of tossing two dice.
   a) List all outcomes in the sample space **Ω**.
   b) List the outcomes contained in each event:
      A = at least one 4 is rolled
      B = both dice land on an even number
      C = A∩B
      D = A∪B
      E = $(A \cup B)'$

2. Fifty households in a community have pets. Twenty-three have one pet, 14 have two pets, 7 have three pets, and 6 have four pets. If a pet is picked at random, what is the probability that it comes from a household with three pets?

3. An urn contains 8 balls numbered 1-8 and a ball is randomly drawn from the urn. Let A = "Ball number 2, 4 or 6 is chosen" and let B = "Ball number 3,4,5,6 or 7 is chosen". Calculate the following probabilities:
   a) P(A) b) P(A′) c) P(A∪B) d) P(A∩B)

4. Suppose two cards are randomly drawn from an ordinary deck of playing cards. What is the probability that they form blackjack? That is, what is the probability that one card is an Ace and one is either a ten, jack, queen, or king?

5. There are seven city council members, two of whom are contractors. Two council members are selected at random to serve on the city Planning Commission. Calculate the probability that the two contractors will be selected for the Planning Commission.

6. Find the simplest expression of the following events:
   a) $(E \cup F) \cap (E \cup F^C)$ b) $(E \cap F) \cap (E \cap G)^C$

7. Given that $P(A \cup B) = .76$ and $P(A \cup B') = .87$, find $P(A)$.

8. Mrs. Ricks has 12 students in her Sunday school class. She will make two rows of 6 students for a singing performance. How many different ways can the children be lined up to sing? What if there are 6 boys and 6 girls and the boys will all be on the back row? Then how many ways are there for them to line up?