**MA 162 Recitation Worksheet Thursday November 13**

1. Let $E$ and $F$ be two events of an experiment that are mutually exclusive , and suppose that $P(E) = 0.2$ and $P(F) = 0.5$. Compute $P(E \cap F), P(E \cup F), P(E^c)$ and $P(E^c \cap F^c)$.

2. Among 500 freshmen pursuing a business degree at a university, 320 are enrolled in an economics course, 225 are enrolled in a mathematics course, and 140 are enrolled in both an economics and a mathematics course. What is the probability that a freshman selected at random from this group is enrolled in:

   (a) An economics and/or a mathematics course?

   (b) Exactly one of these two courses?

   (c) Neither an economics course nor a mathematics course?

3. Two light bulbs are selected at random from a lot of 24, of which 4 are defective. What is the probability that:

   (a) Both of the light bulbs are defective?

   (b) At least one of the light bulbs is defective?

4. A student studying for a vocabulary test knows the meaning of 12 words from a list of 20 words. If the test contains 10 words from the study list, what is the probability that at least 8 of the words on the test are words that the student knows?

5. In the game of blackjack, a 2-card hand consisting of an ace and a face card or a ten is called blackjack.

   (a) If a player is dealt 2 cards from a standard deck of 52 well-shuffled cards, what is the probability that the player will receive a blackjack?

   (b) If a player is dealt 2 cards from 2 well-shuffled standard decks, what is the probability that the player will receive a blackjack?

6. A pair of fair dice is rolled. What is the probability that the sum of the numbers falling uppermost is less than 9, given that at least one of the numbers is a 6?