EE 381 Homework 2 - Part 3

This homework is due with additional parts in dropbox (beginning of laboratory section) on 2-22-2021.

What is the probability of getting a 9 exactly once in 3 throws with a pair of dice?

(From Schaum's. page 154)

There are ten computers in the computer room. At peak hours the probability that any one terminal is being used is 85%. Find the probability of at least two computers being free at peak hours.

(From Solomon, Page 96)

A random variable T is said to have a **lack of memory** or aging property if $P(\{T > t+s\} \mid \{T > t\}) = P(\{T > s\})$ for all $s, t \geq 0$.

> *If we think of T as being the lifetime of some instrument, then the above equation states that the probability that the instrument lives at least $t+s$ hours given that it has survived t hours is the same as the probability that it lives for at least s hours. If the instrument is alive at time t, then the distribution of the remaining amount of time that it survives is the same as the original lifetime distribution, that is, the instrument does not remember that it has already been in use for time t.*
> Reference Probability Models Ross 5th Ed.

Suppose that the amount of time one spends in a bank is exponentially distributed with a mean of ten minutes.

a.) What is the probability that a customer will spend more than fifteen minutes in the bank?

b.) What is the probability that a customer will spend more than fifteen minutes in the bank given that the customer is still in the bank after ten minutes?

An urn contains 5 green chips and 6 blue chips. Four chips are removed at the same time. Let the random variable X be the number of blue chips in the sample of four chips. Using the definition of expectation determine the mean and standard deviation of the number of blue chips in the sample.