EE 381 Homework 5 Part 2

Name, I.D. #, and Date: _____

Instructions: Attempt each exercise and show your work. You can attach pages to your submission. Submit this part of homework 5 with the additional parts of homework 5 to dropbox (laboratory section) on April 27. You may want to make copies of your work.

Suppose that 100 fair dice are tossed. Let X_i be the number showing on the ith die. What is the probability that the sum of the $X_i's$ exceeds 360

Suppose the amount of time one spends in a bank is exponentially distributed with mean ten minutes $\lambda = \frac{1}{10}$. What is the probability that a customer will spend more than fifteen minutes in the bank given that he is still in the bank after ten minutes? (The density function is $f_T(t) = \frac{1}{10}e^{-t/10}$.)

In lieu of using a single resistor three resistors are wired is series. The three resistors are identical. The resistance of each is normally distributed with a mean of 6 ohms and a standard deviation of 0.3 ohms. The probability the combined resistance will exceed 19 ohms is 0.0274. How precise (i.e. what is the required value of the standard deviation would the manufacturing process have to be to make the probability less than 0.0055 that the combined resistance of the circuit would exceed 19 ohms?