ECE 341 - Homework #9

Weibull Distribution, Central Limit Theorem. Due Wednesday, June 1st

Weibull Distribution

1) Determine and plot the cdf for the voltage, Y, in homework set #7

2) Determine and plot the pdf for this voltage using a Weibull approximation for the cdf

Central Limit Theorem

3) Let X be the sum of seven 6-sided dice (7d6 or a level-7 fireball for D&D fans).

- Determine the mean and standard deviation of X
- Determine the probability of doing 34.5 or more damage using a normal approximation

4) Using Matlab, determine the actual odds of rolling 35 or more using a Monte Carlo simulation with one million level-7 fireballs.

- Roll 7d6 one million times and count how many times you did 35 or more damage

Let {a, b, c, d, d, e} each be uniformly distributed over the range of (0, 1).

Let X be the sum: a + b + c + d + e

5) Determine

- The mean and standard deviation of X
- The probability that X is more than 3.50 using a normal approximation

6) Determine the probability that X is more than 3.50 using a Monte-Carlo simulation with 1 million die rolls.