

# ECE 341 - Homework #9

Weibull Distribution, Central Limit Theorem. Due Wednesday, June 3rd

Please make the subject "ECE 341 HW#8" if submitting homework electronically to Jacob\_Glower@yahoo.com (or on blackboard)

## Weibull Distribution

1) Let  $a$  be the time you have to wait until the next customer arrives at a store (in minutes). Assume the mean of  $a$  is 1.000 minute).

- Determine the pdf for the time it takes for three customers to arrive (the sum of three exponential distributions)
- Determine a Weibull distribution to approximate this pdf.

## Central Limit Theorem

2) Let  $X$  be the sum of five 6-sided dice ( $5d6$ ).

- Determine the probability of rolling 22 or higher with  $5d6$
- Use a Normal approximation and from this, determine the probability that the sum is 21.5 or higher.

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

Let  $X$  be the sum:  $a + b + c + d$ .

- Determine the probability that the sum is more than 3.00
- Use a Normal approximation and from this, determine the probability that the sum is more than 3.00