ECE 341 - Homework #7

Uniform and Exponential Distributions. Due Monday, June 1st

Please make the subject "ECE 341 HW#7" if submitting homework electronically to Jacob_Glower@yahoo.com (or on blackboard)

Uniform Distributions

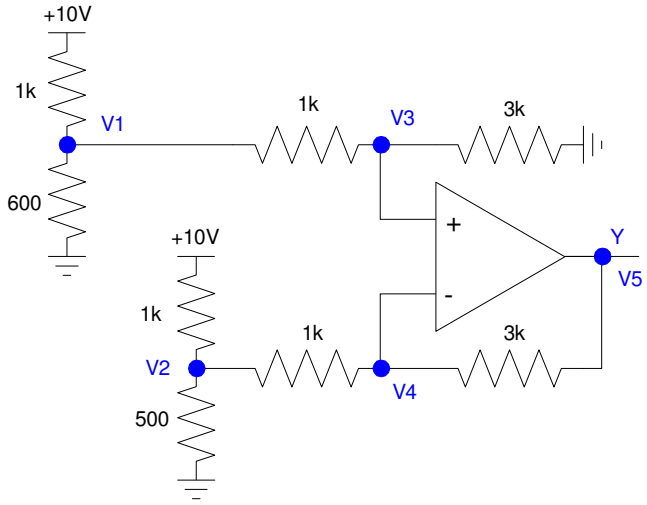
Let

- a be a sample from A, a uniform distribution over the range of (0, 1)
- b be a sample from B, a uniform distribution over the range of (0,6)
- c be a sample from C, a uniform distribution over the range of (0,10)

1) Determine the pdf for a + b using moment generating funcitons (i.e. LaPlace transforms)

2) Determine the pdf for a + b using convolution (by hand or Matlab)

3) Assume each resistor has a tolerance of 5% (i.e. a uniform distribution over the range of (0.95, 1.05) of the nominal value. Determine the mean and standard deviation for the voltage at Y for the following circuit.



Exponential Distributions

Let

- d be a sample from D, an exponential distribution with a mean of 5
- e be a sample from E, an exponential distribution with a mean of 10
- f be a sample from F, an exponential distribution with a mean of 15

4) Use moment generating functions to determine the pdf for d + d + d (i.e. the time for three events to be observed in D)

5) Use moment generating functions to determine the pdf for the sum: d + e + f (i.e. the time for one event from D, E, and F)