Assignment 4 – 3TQ3 CO 1
DUE DEC 6TH 11:59 PM

Q1: Papa bear, mama bear and baby bear are looking for honey in the woods. Assume that the time until they find honey is given by exponential distribution with $\lambda = 10min$ for papa and mama bear and 20 min for baby bear. Assuming that once they find honey, the travel time back to the home is equal for all of them. Find the following probabilities

a) Papa bear is the first to return to home.
b) Papa bear is last to return to home
c) Baby bear is the first to return to home.
d) Baby bear returns before papa and mama.
e) An adult bear is the first to return home.
f) What is the probability that baby bear arrives before mama bear given that papa bear arrived first.

Q2: The interarrival times (time between arrivals of two passengers) of passengers arriving to 47 GO bus stop at McMaster is given by exponential distribution with parameter 2 per minute. The number of passengers on a bus arriving to McMaster stop can be approximated as Poisson random variable with expected value of 10. Assume that the total number of seats on a GO bus is 60. What is the expected value of time T needed for number of people waiting for the bus be larger then the number of available seats?