STAT319   Quiz 3   Monday March 19, 2012

Name: ———————————————   ID #: ————————————

1) The probability distribution of X, the number of imperfections per 10 meters of a synthetic fabric in continuous rolls of uniform width, is given by

x	0	1	2	3	4
$f(x)$	0.39	0.35	0.20	0.05	0.01

a) Find the cumulative distribution function of X.
b) Find the mean the standard deviation of the number of imperfections.

2) Suppose that airplane engines operate independently and fail with probability equal to 0.4. Assuming a plane makes a safe flight if at least one-half of its engines run; determine whether a 4-engine plane or a 2-engine plane has the higher probability for a successful flight.

3) In order to accept a shipment a company takes a sample of 5 out a shipment of 50 identical items, and accepts the shipment if no more than 2 are found to be defective. What proportion of shipments with 20% defectives will be accepted?