Math 477 REAL QUIZ #9

NAME: (print!) _____

E-MAIL ADDRESS: (print!) _____

1. (5 points) You go to a casino in St. Petersburg where you have a chance of 10^{-6} of winning one hundred million rubles, and a chance of $1 - 10^{-6}$ of losing 10 rubles. You do it for n days, and each time is independent of the other times. If X is the random variable denoting your gain, what is the probability generating function? What is $E[X]$? What is $Var(X)$?

2. (5 points) Let X and Y be the number of hours that a randomly selected person watches movies and sports events, respectively, during a three-month period. The following information is known about X and Y.

$$E[X] = 30 \quad , \quad E[Y] = 30 \quad , \quad Var(X) = 20 \quad , \quad Var(Y) = 20 \quad , \quad Cov(X, Y) = 30 \quad .$$

Four hundred people are randomly selected and observed for these three months. Let T be the total number of hours that these four hundred people watch movies or sports events this three month period.

Approximate the value of $P(T < 26000)$.