Mathematics 469 - Spring, 2006 - Homework 12

Due May 1.

1. Suppose $X$ and $Y$ are independent normal random variables. $X$ has mean 8 and standard deviation 7 while $Y$ has mean 15 and standard deviation 24. Find $P(X < Y)$.

2. Suppose $X$ is a normal random variable with mean 50 and standard deviation 25. Find a value $b$ so that

\[ P(50 - b < X < 50 + b) = 0.95. \]

3. Suppose the size of a loss is an exponential random variable with mean 10. An insurance policy will not cover any portion of a loss below 1 or above 100, but the policy will cover all remaining portions of a loss. What is the expected value of the portion of a loss not covered by this insurance policy?