Name:

MATH 320: In-Class 13

1. Suppose losses for a single insurance policy $X \sim \text{Uniform}\,(a = 0, b = 100)$. If there is a deductible of 10 and a cap of 40, find the expected amount of a single claim for this policy.

2. Let $X \sim \text{Uniform}\,(a = 1, b = 5)$ and $Y = -X$. Find the cdf of Y, $F_Y(y)$.

3. Let $X \sim \text{Normal}\,(\mu = 10, \sigma^2 = 4)$ and $Y = e^X$. Find the pdf of Y, $f_Y(y)$, using the pdf method. Compare the result to the pdf of $Y \sim$ Lognormal pdf.

4. Let $f(x) = 1.5x + 0.25 \quad 0 \leq x \leq 1$ and $Y = \ln(X)$.

   (a) Find the cdf of Y, $F_Y(y)$.

   (b) Find the pdf using the cdf method.

5. Let $X \sim$ Geometric $(p = 0.3)$ and $Y = \sqrt{X}$. Find the pdf of Y, $f_Y(y)$.