

ECONOMICS 6331 – Probability and Statistics, Fall 2005

Homework 3. Monday September 12. Due Monday September 19.

1. Assume that a random variable X is uniformly distributed on the interval $[2, 6[$.
 - a) What is the probability that $X < 3$? And the probability that $X > 5$?
 - b) What is the probability that $7 + 3X \geq 15$?
 - c) If $f(x) = 7 + 3x$, what is the distribution of the random variable $Y = f(X)$?
 - d) If $g(x) = 7 - 3x$, what is the distribution of the random variable $Y = g(X)$?
 - e) If $f(x) = e^x$, what is the distribution of the random variable $Y = f(X)$?

You have to be explicit about both the density for Y and the support (the area where the density for Y non-zero). For questions c) and d), clearly marked graphs may be a sufficient answer.

2. Ramanathan, Exercise 3.8