Homework 5 Supplement, Statistics 200A Fall 2011

1. Let X have the standard normal distribution. Find the density of e^X.

2. A laser aimed from a fixed height which is a foot away from an infinite wall makes an angle in the horizontal plane that is uniformly distributed in the interval $(-\pi/2, \pi/2)$. Find the density of the point where the laser hits the wall.

3. Assume that X has a density function $f(x)$ that is only positive if $-1 \leq x \leq 1$. What is the density function of $|X|$? What is the density of X^2?