1. Let $X \sim \text{Unif}[0,1]$. Compute the pdf of the following random variables:

(a) X^3

(b) $\ln X$

2. Let $X \sim \text{Unif}[-1,1]$. Compute first cdf, and then pdf of X^2.
(Careful: the function $y = x^2$ is not monotone on $[-1,1]$.)

3. Consider a point P chosen at random (uniformly) from the semicircle $\{x^2 + y^2 = 1, \ y \geq 0\}$. Compute the pdf of the x-coordinate of P.
(Hint: what is the distribution of the angle θ that defines the point P?)