

3. (a) Give an example of a random variable such that $E(X)$ is undefined. (i.e., $E(X)$ diverges to ∞ .)
- (b) Give an example of a random variable X such that $E(X) < \infty$ and $E(X^2)$ is undefined. (i.e., $E(X^2)$ diverges to ∞ .)
4. Choose a point uniformly at random in a unit square (i.e., a square of side length 1). Let X be the distance from the point chosen to the nearest edge of the square. Find the cdf of X . (*Hint*: draw a picture!) Then find the pdf of X .