

Special Mathematics

TEST-D

Problem 1. X is the Gaussian $(0, 1)$ random variable and Y is the Gaussian $(0, 2)$ random variable. Sketch the PDF's f_X and f_Y on the same axes. What is $P(-1 < X \leq -1)$ and $P(Y > 3.5)$?

Problem 2. Random variables X, Y have joint PDF:

$$f_{X,Y}(x, y) = \begin{cases} 4xy & 0 \leq x \leq 1, 0 \leq y \leq 1 \\ 0 & \text{otherwise} \end{cases}$$

Find $E[X]$ and $Var[X]$.

estimated time: 50 min