Math 251

Quiz 7   October 26, 2016

(1) Evaluate $\int_0^2 \int_0^{\sqrt{4-x^2}} e^{-x^2-y^2} \, dy \, dx$.

(2) Consider random variables X, Y with joint probability distribution

$$\rho(x, y) = \begin{cases} 1/(x^2 y) & \text{if } x \geq y \geq 1, \\ 0 & \text{otherwise.} \end{cases}$$

Compute $P(X \geq 3Y)$. (It is $\iint_R \rho(x, y) \, dA$, where R is the region where $x \geq 3y$. Now set up this integral and compute it.)