Math 53 - Multivariable Calculus

Quiz # 7

October 19th, 2011

Exercise 1. *Evalute the integral*

$$\int_0^1 \int_0^1 e^{max\{x^2, y^2\}} dy dx,$$

where $max\{x^2, y^2\}$ means the larger of the numbers x^2 and y^2. (Hint, disect the region of integration along the line $y = x$.)

Exercise 2. *Evaluate $\int \int_R e^{-x^2 - y^2} dx dy$, where $R = \{(x, y) \in \mathbb{R}^2 \mid x^2 + y^2 \leq 1\}$.*

Exercise 3. *Evaluate $\int_0^4 \int_{\sqrt{x}}^2 \frac{1}{y^3 + 1} dy dx$. (Hint, reverse the order of integration.)*