

MATH 201 QUIZ 5

SECTION:

ID:

NAME:

1. Let $D = \{(x, y) : 0 \leq x \leq 1, 0 \leq y \leq \sqrt{1-x^2}\}$. Compute $\iint_D e^{-x^2-y^2} dA$.

2. Convert the iterated integral

$$\int_0^1 \int_{\sqrt{x}}^1 \int_0^{1-y} f(x, y, z) dz dy dx$$

into the iterated integral in the order of $dx dy dz$.

3. Convert the following iterated integral to the integration formula in the cylindrical coordinates.

$$\int_{-1}^1 \int_0^{\sqrt{1-x^2}} \int_{\sqrt{x^2+y^2}}^{2-x^2-y^2} yz dz dy dx.$$

4. Let E be the common interior region of two spheres $x^2 + y^2 + z^2 = 1$ and $x^2 + y^2 + (z-1)^2 = 1$. Find the integral formula (possibly sum of integrals) of the volume of E with the spherical coordinates.