Math 210 (Lesieutre)
13.4: Triple integrals
March 3, 2017

Problem 1. Compute the following triple integrals over rectangular regions.

a) $\displaystyle\int_0^1 \int_1^2 \int_0^2 xyz \, dz \, dy \, dx$

b) $\displaystyle\int_0^2 \int_1^2 \int_0^1 xyz \, dx \, dy \, dz$

Problem 2. Set up bounds for integrating a function $f(x, y, z)$ on a cylinder of height 3 and radius 2, with base centered at $(0, 0, 0)$.

Problem 3. Evaluate the triple integral

$$\int_0^1 \int_0^{\sqrt{1-x^2}} \int_0^{2-x} yz \, dz \, dy \, dx$$

Problem 4. Change the bounds on the following integral from $dx \, dy \, dz$ to $dy \, dx \, dz$.

$$\int_0^4 \int_0^1 \int_0^{2y} f(x, y, z) \, dx \, dy \, dz.$$