

Problem Set #7

Due: 29 October 2010

1. Find the volume of the region bounded by the plane $ax + by + cz = 1$ and the coordinate planes. Assume a , b and c are positive constants.
2. Rewrite the following sum of iterated integrals as a single iterated integral by reversing the order of integration, and evaluate.

$$\int_0^8 \int_0^{\sqrt{y/3}} y \, dx \, dy + \int_8^{12} \int_{\sqrt{y-8}}^{\sqrt{y/3}} y \, dx \, dy$$

3. Find the average value of the sum of the squares of three numbers x , y , z where each number is between 0 and 2.