MATH 251 - Worksheet 8

NAME:

I.D.:

Instruction: Circle your answers and show all your work CLEARLY. Solutions with answer only and without supporting procedures will have little credit.

1. Compute the value of the triple integral $\int\int\int_T f(x, y, z)dV$, where $f(x, y, z) = x^2$, and T is the tetrahedron bounded by the coordinate planes and the first octant part of the plane with equation $x + y + z = 1$.

2. Compute the value of the triple integral $\int\int\int_T f(x, y, z)dV$, where $f(x, y, z) = xyz$, and T lies below the surface $z = 1 - x^2$ and above the rectangle $-1 \le x \le 1$, $0 \le y \le 2$ tin the $z = 0$ plane.

3. Compute the value of the triple integral $\int\int\int_T f(x, y, z)dV$, where $f(x, y, z) = 2y + z$, and T lies below the surface $z = 4 - y^2$ and above the rectangle $-1 \le x \le 1$, $-2 \le y \le 2$ in the xy-plane.

4. Find the volume of the solid bounded by the surfaces $y + z = 4$, $y = 4 - x^2$, $y = 0$ and $z = 0$ by triple integration.

5. Find the volume of the solid bounded by the surfaces $z = x^2$, $y + z = 4$, $y = 0$ and $z = 0$ by triple integration.