MA 227 , Calculus - III. Test - III Wednesday, December 3, 2003.

Student's Name _____

. *(Please, print)*

GIVE REASONS FOR YOUR ANSWERS!

TEST 3:

HW:

The Final Grade for TEST 3:

I. (20 %) Evaluate the integral:

$$\int_D (x - 2y) dA,$$

where D is the region bounded by the line $x = y$ and the parabola $y = x^2$.

II. (20 %) Use the polar coordinates to find the volume of a solid between the paraboloid $z = 9 - x^2 - y^2$ and the plane $z = 0$.

III. (20 %) Find the center of mass of the thin plate with density 3 bounded by lines $x = 0$, $y = 1$ and the parabola $y = x^2$ in the first quadrant.

IV. (20%) Find

$$\int_E \int \int x \, dV,$$

where E is a solid tetrahedron bounded by the planes $x = 0$, $y = 0$, $z = 0$ and $2x + y + z = 4$ in the positive octant.

V. (20 %) Evaluate the integral

$$\int\int_E\int z \; dV,$$

where E is the region inside the ball $x^2 + y^2 + z^2 = 4$ and the cone $\Phi = \pi/6$.