

# Calculus: Inclass Homework 10

May 22nd, 2008

1. Sketch the solid which lies in the first octant and is bounded by  $z = 12 - 3y^2$  and  $x + y = 2$ . Also, find its volume.

2. (a) Let  $R = [a, b] \times [-c, c]$ . Show that if  $f(x, -y) = -f(x, y)$  for all  $x, y$ , then

$$\iint_R f(x, y) dA = 0.$$

- (b) Let  $D$  be the plane region bounded by the triangle with vertices  $(0, 0)$ ,  $(0, 1)$ ,  $(1, 1)$ . Show that

$$\int_0^1 f(x) dx = 0 \quad \Rightarrow \quad \iint_D f(x)f(y) dA = 0.$$