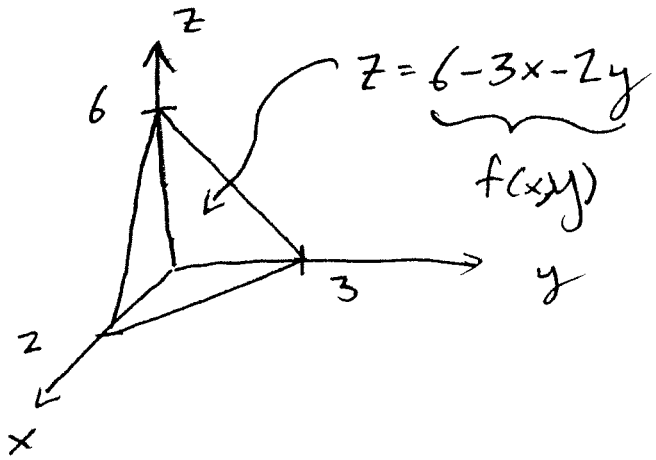
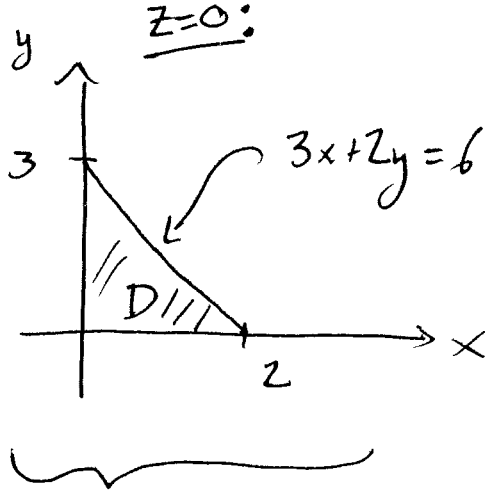
Math 272A
Spring 2010
Instructor: Shawn Rafalski

Multivariable Calculus II
Quiz 1
**Write your name on this quiz**

Solution

1. Write down the double integral that represents the volume of the tetrahedron bounded by the planes $x = 0$, $y = 0$, $z = 0$ and $3x + 2y + z = 6$. *You do not need to evaluate the integral.*




Describe D

Volume $= \iint_D f(x,y)\, dA$

(I) $0 \le x \le 2$
$0 \le y \le \frac{6-3x}{2}$

or

(II) $0 \le y \le 3$
$0 \le x \le \frac{6-2y}{3}$

$$\int_0^2 \int_0^{\frac{6-3x}{2}} (6-3x-2y)\, dy\, dx \quad \text{(I)}$$

or

$$\int_0^3 \int_0^{\frac{6-2y}{3}} (6-3x-2y)\, dx\, dy \quad \text{(II)}$$