# Math 53: Quiz #5

March 14

GSI: M. Lindsey

20 points, 20 minutes

Name: _____

Please give neat and organized answers. Whenever applicable (especially for computational questions), make it clear what strategy you are using. Points may be deducted for poor exposition.

## Problem 1

(10 points.) Minimize the function $f(x, y) = x^2 + 2y^2$ subject to the constraint $xy = 1$. Give both the minimizing point and the minimal value. (Box your answer.)

(See back for next problem!)

## Problem 2

(10 points.) Let $f(x,y) = \frac{2}{15}(x^2+y^2)$. Compute the integral

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

where $D = \{(x,y)\,|\,1 \le x^2+y^2 \le 4\}$. (7 points for correctly setting up the integral, 3 points for correct answer. (Box both the integral that you set up and your answer.)