

Math 53, Spring 2000, sections 107 & 109
Quiz #9, 24 March

Name_____

Instructions: You have 30 minutes in which to answer the following two questions. No calculators, notes, or other references may be used.

1. (6 points) Evaluate the following integral (it may be helpful to make a change of coordinates):

$$\iint_R x^2 y \, dA$$

where R is the region in the first quadrant of the x - y plane bounded by the equations $y = \frac{3}{x}$, $y = \frac{4}{x}$, $y = \frac{1+x}{x}$, and $y = \frac{2+x}{x}$.

3. (4 points) Evaluate the following integral. (**Hint:** Use symmetry, if you can justify it.)

$$\iiint_E (x^2 y - y z^2) \, dV$$

where E is the region bounded by the equation

$$x^2 + 2xy + 3y^2 + 2yz + z^2 = 1.$$