Math 53 Discussion

Quiz on Monday: Review sections 15.4, 15.5, 15.10

Practice Problems: 15.10, change of variables in double integrals

1) Find the Jacobian of the transformation $x = uv, y = u/v$.

2) Find the image of the set

$$S = \text{triangular region with vertices } (0,0),\ (1,1),\ (0,1) \text{ in the } uv\text{-plane}$$

under the transformation $x = u^2, y = v$.

Over →

3) Use the following transformation to evaluate $\int\int_R xy\, dA$, where $R = \{$the region in the first quadrant bounded by the lines $y = x$, $y = 3x$ and the hyperbolas $xy = 1, xy = 3\}$:

$$x = u/v, \quad y = v$$

4) Evaluate $\int\int_R e^{x+y} dA$ over $R = \{|x| + |y| \leq 1\}$ by making a suitable change of variables.