

PROBLEM SET # 9

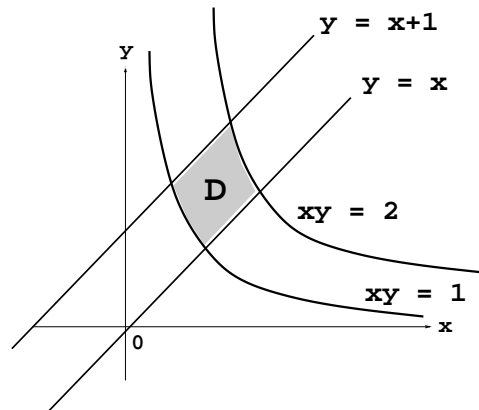
(due: April 2)

1.
$$\int_{-3}^3 \int_{-\sqrt{9-x^2}}^0 \int_{\sqrt{x^2+y^2}}^3 (xy + 2z) dz dy dx = \int_{\boxed{}}^{\boxed{}} \int_{\boxed{}}^{\boxed{}} \int_{\boxed{}}^{\boxed{}} (xy + 2z) dy dx dz .$$

2. Page 375 : # 3.

3. Page 390 : # 1, 3(b), 6, 26(a), 29.

4. Compute $I = \iint_D \frac{(y+x)}{xy} dx dy$, where D is the region:



Hint : Let $u = xy$ and $v = y - x$ and recall that $\frac{\partial(x, y)}{\partial(u, v)} = \frac{1}{\frac{\partial(u, v)}{\partial(x, y)}}$

5. Let W be that part of solid sphere $x^2 + y^2 + z^2 \leq 9$ which lies above the plane $z = 2$. Let $I = \iiint_W (2x^2 + 2y^2 + 10z) dV$. Set up but do not evaluate the triple integral I in *Rectangular*, *Cylindrical* and *Spherical Coordinates*.