Due Thursday 03/20/14 at the beginning of class. STAPLE YOUR WORK

QUIZ 7 (Take-home) MATH 221

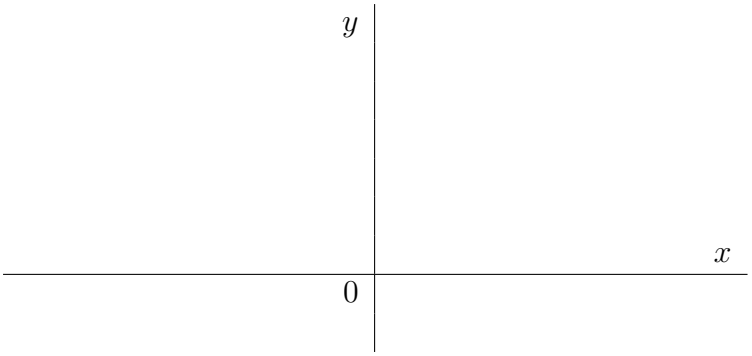
LAST NAME_____ FIRST NAME_____

On my honor, as an Aggie, I certify that the solution submitted by me is my own work. I had neither given nor received unauthorized aid on this work.

Signature: _____

1. [20pts] Given
$$\iint_D f(x,y)\,\mathrm{d}A = \int_0^1 \int_{-\sqrt{1-y^2}}^{2(1-y)} f(x,y)\,\mathrm{d}x\mathrm{d}y$$

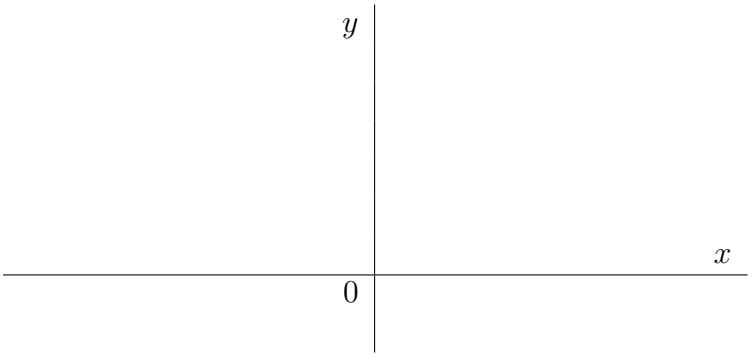
   (a) Sketch the region of integration D.



   (b) Reverse the order of integration. *WRITE YOUR ANSWER HERE:*

2. [20pts] Given
$$\int_0^2 \int_{-\sqrt{1-(y-1)^2}}^{(2-y)/2} f(x,y)\,\mathrm{d}x\mathrm{d}y.$$

   (a) Sketch the region of integration D.



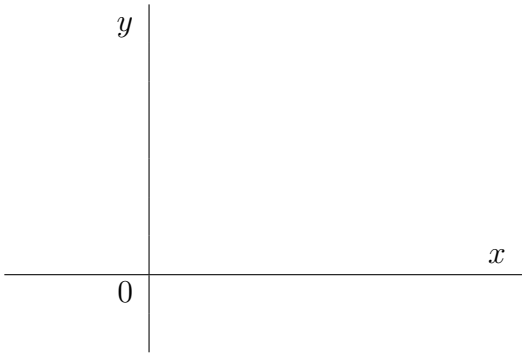
   (b) Reverse the order of integration. *WRITE YOUR ANSWER HERE:*

3. [20pts] Evaluate the integral by reversing the order of integration:

$$\int_0^3 \int_{y^2}^9 y\cos(x^2)\mathrm{d}x\mathrm{d}y.$$

4. [20pts] Find the volume of the solid that lies under the surface $z = 3xy$ and above the region D in the xy-plane bounded by the parabolas $y = x^2$ and $x = y^2$.

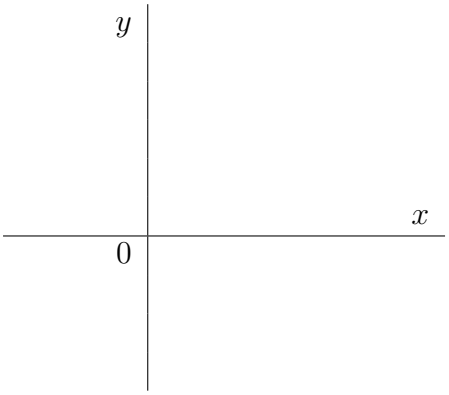
Sketch D here:



5. [20pts] A lamina occupies the region $D = \{(x, y) | 1 \leq x^2 + y^2 \leq 4,\ x \geq 0\}$. The density of the lamina at any point is equal to its distance from the origin.

   (a) Find the mass of the lamina.

   Sketch D here:



   (b) Find the center of mass of the lamina.