

**Quiz #07 – MATH 2421**  
Spring 2008

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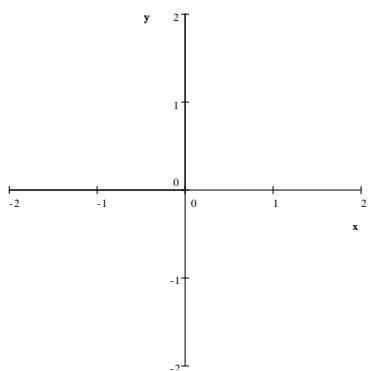
Name : \_\_\_\_\_

Directions: No calculators, books, or notes. Show algebra. Be sure to highlight your final answer!

1. [5 pts.] Reverse the order of integration and evaluate the double integral.

$$\int_0^1 \int_x^1 \frac{2}{1+(y^2)^2} dy dx = ???$$

The integral of  $\frac{2}{1+y^4}$  requires an extreme amount of algebra. You might hurt yourself.



$y: x \rightarrow 1$   
 $x: 0 \rightarrow 1$

Horizontal first...

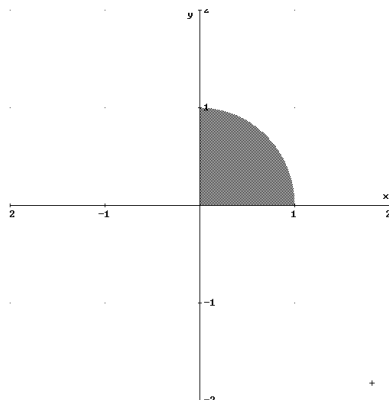
$x:$

$y:$

2. [5 pts.] The polar region  $R$  is depicted below. Evaluate this double integral:

$$\iint_R y^2 dA = ??$$

$R: x^2 + y^2 \leq 1$ , Quadrant I only.



Hints: The polar area differential is  $dA = r dr d\theta$ .

$$x = r \cos(\theta) \quad y = r \sin(\theta)$$

$r$ :

$\theta$ :