Quiz 3

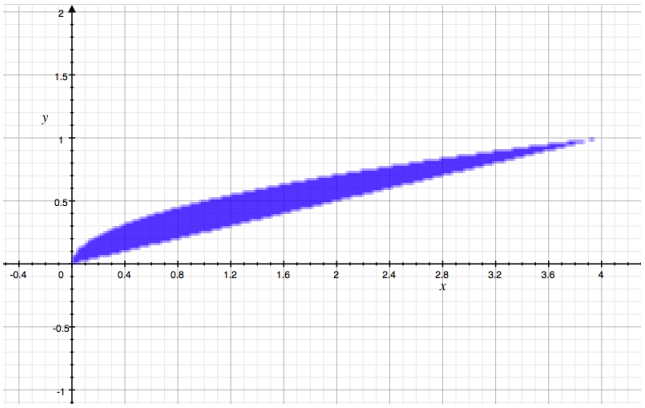
NAME:

Question 1.(10 points.)

(A) Evaluate the integral $\int_0^4 \int_{x/4}^{\sqrt{x}/2} \; x \; dy \; dx$.

$\int_0^4 \int_{x/4}^{\sqrt{x}/2} \; x \; dy \; dx = \int_0^4 x(\sqrt{x}/2 - x/4) \; dx = \int_0^4 \frac{1}{2}x^{\frac{3}{2}} - \frac{1}{4}x^2 \; dx = (\frac{1}{5}x^{\frac{5}{2}} - \frac{1}{12}x^3)|_0^4 = \frac{16}{15}$.

(B) Graph the region of integration.



(C) Reverse the order of integration, and evaluate the integral with the order reversed.

$\int_0^1 \int_{4y}^{4y^2} \; x \; dx \; dy = \int_0^1 8y^2 - 8y^4 \; dy = \frac{16}{15}$.