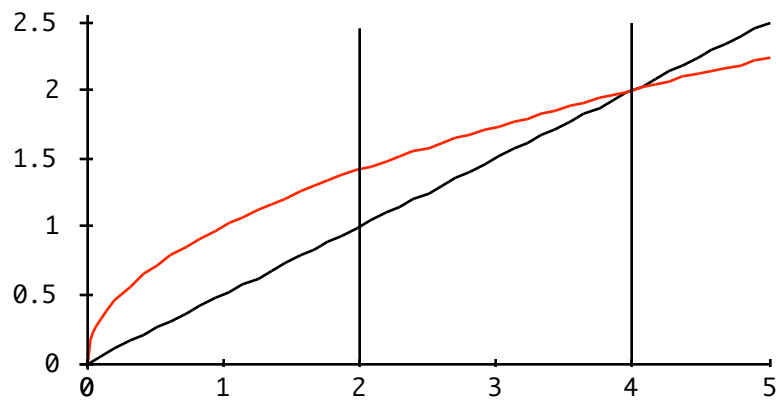


Math 213 - 12.3 - Double Integrals Problems

1. Sketch the region in the xy plane that is the base of the volume integral, and evaluate the integral:

$$\int_0^1 \int_{y=0}^{1+x} (3x + 2y) dy dx$$

2. Integrate $\iint_R xy dA$ where R is the region bounded by the graphs of $y = \sqrt{x}$, $y = \frac{1}{2}x$, $x = 2$, $x = 4$ as seen below.



3. Evaluate $\int_0^1 \int_{\sqrt{y}}^1 \sin(\pi x^3) dx dy$ by reversing the order of integration.

4. Set up an integral for both orders of integration. Do *not* evaluate.

$$\iint_R \frac{y}{x^2 + y^2} dA$$

where R is the triangle bounded by $y = x$, $y = 2x$, $x = 2$.

a. Sketch the region R .

b. Set up the integral for the order: $dy dx$.

c. Set up the integral for the order: $dx dy$.