Math 102 — Washer method

Problem 1. Consider the region R bounded by $y = 2x$ and $y = x^2$. Use the washer method to set up (1) an integral for the volume when R is revolved around the x-axis, and (2) an integral for the volume when R is revolved around the y-axis.

Problem 2. Use the washer method to set up (1) an integral for the volume when the region bounded by

$$y = x, y = 2x, x = 1$$

is revolved around the x-axis, and (2) an integral for the volume when the region is revolved around the y-axis.

Problem 3. Use the washer method to set up an integral to find the volume of the solid of revolution formed by revolving the region in the first quandrant bounded between $y = 4 - x^2$, $y = 0$, and $x = 0$ around the axes below.

a. $y = -1$.

b. $y = 5$.

c. $x = -1$.

d. $x = 3$.