7.2b Volume - Washer Method Practice Problems Worksheet

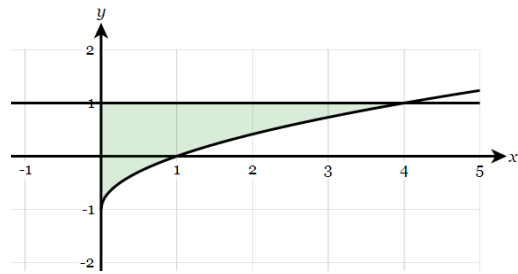| Washer Method: (Top – Bottom) – Vertical Radius	Washer Method: (Right – Left) – Horizontal Radius
$$V = \pi \int_{x_1}^{x_2} [R(x)]^2 - [r(x)]^2 \, dx$$	$$V = \pi \int_{y_1}^{y_2} [R(y)]^2 - [r(y)]^2 \, dy$$
(expression(s) used above has form: " y = ___ ")	(expression(s) used above has form: " x = ___ ")

1. Let the region R be the area enclosed the the function $f(x) = \sqrt{x} - 1$, the horizontal line y=1, and the y-axis. Find the volume of the solid generated when the region is:
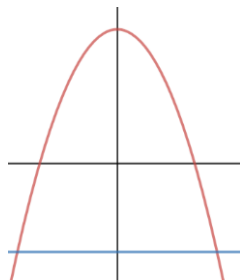
a) revolved about the line y = -3
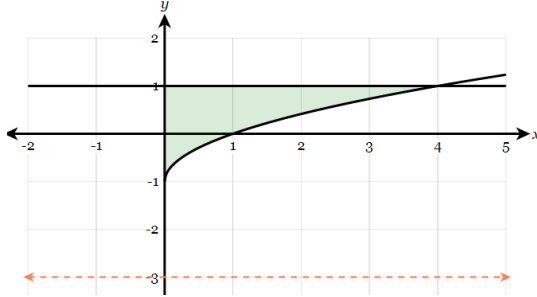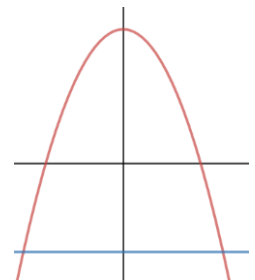

b) revolved about the line x = - 1

2. Let the region R be the area enclosed the the function $f(x) = 3 - x^2$ the line $y = -2$. Find the volume of the solid generated when the region is:

a) revolved about the line y = 3

b) revolved about the line y = - 2

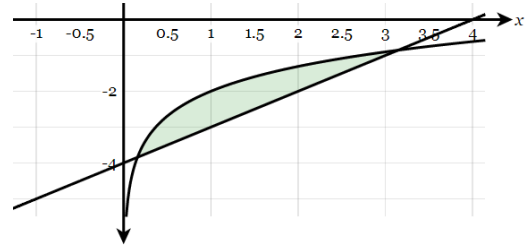| Washer Method: (Top – Bottom) – Vertical Radius	Washer Method: (Right – Left) – Horizontal Radius
$V = \pi \int_{x_1}^{x_2} [R(x)]^2 - [r(x)]^2 \, dx$	$V = \pi \int_{y_1}^{y_2} [R(y)]^2 - [r(y)]^2 \, dy$
(expression(s) used above has form: " y = ___ ")	(expression(s) used above has form: " x = ___ ")

3. Let the region R be the area enclosed the function $f(x) = \ln x - 2$ and $g(x) = x - 4$. Find the volume of the solid generated when the region is:
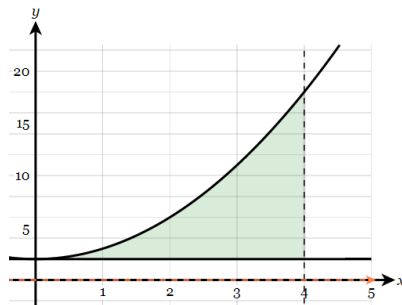
a) revolved about the line $y = 2$
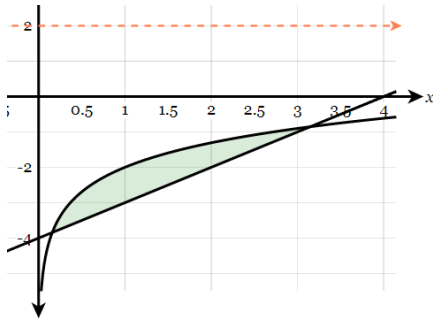
b) revolved about the line x $= -1$

4. Let the region R be the area enclosed by the function $f(x) = x^2 + 2$, the horizontal line y=2, & the vertical lines x=0 & x=4. Find volume of the solid generated when region is:

a) revolved about the line $x = 5$

b) revolved about the line $x = 4$