

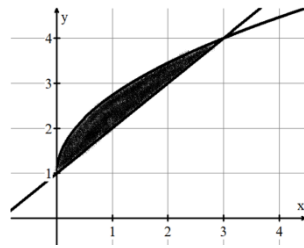
# 8.5 Area Between Curves (with respect to y)

Calculus

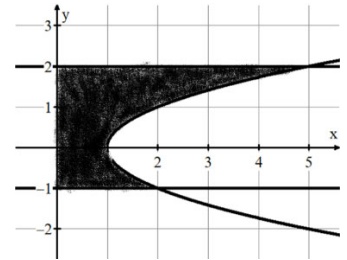
Name: \_\_\_\_\_

For each region, set up an integral with respect to y that represents the area of the region. Do not solve.

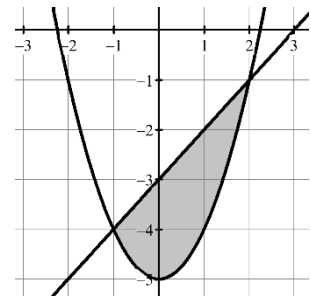
1.  $y = \sqrt{3x} + 1, y = x + 1$



2.  $x = y^2 + 1, x = 0, y = -1, y = 2$



3.  $y = x^2 - 5$  and  $y = x - 3$



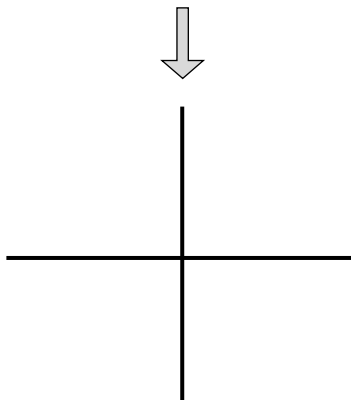
Set up the integral(s) that give the area of the region bounded by the given equations. Show the equivalent set up with respect to x as well as with respect to y.

4.  $y = 3x^2, y = 0, x = 1, x = 3$

Sketch a graph here in the middle!

with respect to x

with respect to y



Find the area of the region bounded by the following curves. Set up your integrals with respect to y. A calculator is allowed to evaluate the integral.

5.  $y = x^3$  and  $x = y^2 - 1$

$4a. \int_3^4 (3x^2) dx$	$4b. \int_3^0 (3 - 1) dy + \int_2^3 (3 - \sqrt{y}) dy$
$2. \int_2^{-1} (y^2 + 1) dy$	$3. \int_{-1}^5 (2\sqrt{y+5}) dy + \int_{-1}^4 (\sqrt{y+5} - y - 3) dy$
$5. \int_{-1.4611}^{-0.4711} (\sqrt{y} - y^2 + 1) dy = 1.826$	