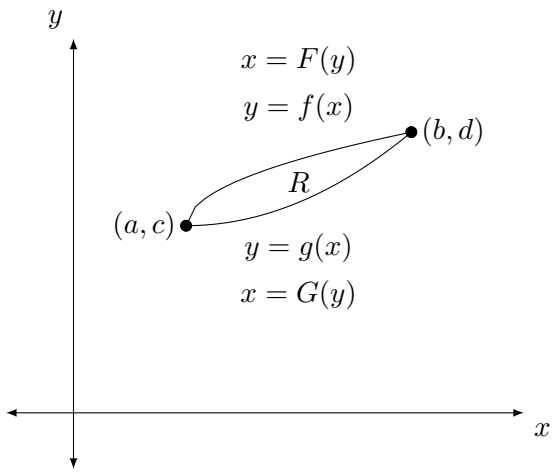
**Volumes**

Suppose $R$ is the region bounded by the curves as indicated in the below. Assume $a < b$ and $c < d$.




Set up integrals for the following, but do not evaluate.

1. The volume of a solid with base given by $R$ and whose cross-sections perpendicular to:

   (a) the $x$-axis are squares.

   (b) the $x$-axis are rectangles whose heights are half their width.

   (c) the $x$-axis are right isosceles triangles whose hypotenuse is along the base.

(d) the $x$-axis are semi-circles.

(e) the $y$-axis are semi-circles.

(f) the $y$-axis are rectangles whose heights are three times their width.

(g) the $y$-axis are right isosceles triangles whose hypotenuse is not on the base.

(h) the $y$-axis are triangles whose heights are three times their base.

2. The volume of the solid of revolution where we revolve the region $R$ about:

   (a) the $x$-axis

   (b) the $y$-axis

   (c) the line $y = -2$ (assume $c > -2$)

(d) the line $x = -3$ (assume $a > -3$)

(e) the line $y = 4$ (assume $d < 4$)

(f) the line $x = 5$ (assume $b < 5$)