

8.2 Applications to Geometry

Name:

Date:

P 11. The region bounded by $y = 1/(x+1)$, $y = 0$, $x = 0$, and $x = 1$ is rotated about the x -axis. Find the volume of the resulting solid of revolution.

P 13. The region bounded by $y = x^2$, $y = x$, $x = 0$ and $x = 1$ is rotated about the x -axis. Find the volume of the resulting solid of revolution.

P 15. Find the arc length of the graph of $f(x) = x^2/2$ from $x = 0$ to $x = 2$.

P 25. Set up, but do not evaluate, an integral that represents the volume obtained when the region bounded by $y = \sqrt[3]{x}$ and $x = 4y$, in the first quadrant, is rotated about the axis $x = 9$.

P 27. Set up, but do not evaluate, an integral that represents the volume obtained when the region bounded by $y = 0$, $x = 9$, and $y = \frac{1}{3}x$, in the first quadrant, is rotated about the axis $y = -2$.

P 41. Find the volume of the solid obtained by rotating the region bounded by $y = x^2$, $y = 1$, and the y -axis, for $x \geq 0$, about the x -axis.