

7.2 Volume: The Disk Method

Name:

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P 16. Find the volume of the solid generated by revolving the region bounded by the graphs of the equations

$$y = \frac{1}{2}x^3, \quad y = 4, \quad \text{and} \quad x = 0$$

about the line $y = 4$.

P 18. Find the volume of the solid generated by revolving the region bounded by the graphs of the equations

$$y = \sec x \quad \text{and} \quad y = 0,$$

where $0 \leq x \leq \pi/3$ about the line $y = 4$.

P 22. Find the volume of the solid generated by revolving the region bounded by the graphs of the equations

$$xy = 3, y = 1, y = 4, \text{ and } x = 5$$

about the line $x = 5$.

P 24. Find the volume of the solid generated by revolving the region bounded by the graphs of the equations

$$y = x\sqrt{4 - x^2} \text{ and } y = 0$$

about the x -axis.

P 30. Find the volume of the solid generated by revolving the region bounded by the graphs of the equations

$$y = \sqrt{x}, y = -\frac{1}{2}x + 4, x = 0, \text{ and } x = 8$$

about the x -axis.

P 34. Find the volume of the solid generated by revolving the region bounded by the graphs of the equations

$$y = \cos 2x, y = 0, x = 0, \text{ and } x = \pi/4$$

about the x -axis.

P 71. Find the volumes of the solids whose bases are bounded by the graphs of $y = x + 1$ and $y = x^2 - 1$, with

(a) square cross sections

(b) rectangle cross sections with a height of 1

taken perpendicular to the x -axis.

P 72. Find the volume of the solid whose bases are bounded by the circle $x^2 + y^2 = 4$ with

- (a) square cross sections
- (b) equilateral cross sections
- (c) semicircle cross sections
- (d) isosceles right triangle cross sections

taken perpendicular to the x -axis.