

Solve neatly on separate paper.

Name_____

Exercises

1. Find the volume of the solid of revolution generated when the area described is rotated about the x -axis.
 - (a) The area between the curve $y = x$ and the ordinates $x = 0$ and $x = 4$.
 - (b) The area between the curve $y = x^{3/2}$ and the ordinates $x = 1$ and $x = 3$.
 - (c) The area between the curve $x^2 + y^2 = 16$ and the ordinates $x = -1$ and $x = 1$.
 - (d) The area between the curve $x^2 - y^2 = 9$ and the ordinates $x = -4$ and $x = -3$.
 - (e) The area between the curve $y = (2 + x)^2$ and the ordinates $x = 0$ and $x = 1$.
2. The area between the curve $y = 1/x$, the y -axis and the lines $y = 1$ and $y = 2$ is rotated about the y -axis. Find the volume of the solid of revolution formed.
3. The area between the curve $y = x^2$, the y -axis and the lines $y = 0$ and $y = 2$ is rotated about the y -axis. Find the volume of the solid of revolution formed.
4. The area cut off by the x -axis and the curve $y = x^2 - 3x$ is rotated about the x -axis. Find the volume of the solid of revolution formed.
5. Sketch the curve $y^2 = x(x - 4)^2$ and find the volume of the solid of revolution formed when the closed loop of the curve is rotated about the x -axis.
6. A conical funnel is formed by rotating the curve $y = \frac{1}{3}x$ about the y -axis. The radius of the rim of the funnel is to 6 cm. Find the depth of the funnel and its volume.