

Example 1. The region R is in the first quadrant enclosed by the curves $y = 3x^2 - x^3$ and $y = 0$. Find the volume of the solid obtained by rotating R about the y -axis.

Example 2. The region R is in the first quadrant enclosed by the curves $y = x$ and $y = x^3$. Use cylindrical shells, find the volume of the solid obtained by rotating R about the y -axis.

Example 3. The region R is enclosed by the curves $x = 2y^2 - y^3$ and $x = 0$. Use cylindrical shells, find the volume of the solid obtained by rotating R about the x -axis.

Example 4. Find the volume of the solid obtained by rotating the region bounded by $y = 2x - x^2$ and $y = 0$ about the line $x = 3$.

Example 5. The region R is in the first quadrant enclosed by the curves $xy = 2$, $x = 0$, $y = 3$, $y = 4$. Use cylindrical shells method to find the volume of the solid obtained by rotating R about the x -axis.