

Suggested Problems (Week 3)

MATH 142

Friday 11th June, 2021

Problem 1. Find the area of the region enclosed by the curves $y = 1/x$, $y = x$ and $y = 4x$, first by using x as the variable of integration, and second by using y as the variable of integration.

Problem 2. Find the volume of the solid obtained by rotating the region bounded $y = x^3$, $y = 8$, and $x = 0$ about the y -axis.

Problem 3. Use cylindrical shells to find the volume of the solid obtained by rotating about the x -axis the region under the curve $y = \sqrt{x}$ from 0 to 1.

Problem 4. The region of the first quadrant bounded by the curves $y = x^2$ and $y = 2x$ is rotated about the line $x = -1$ to create a solid. Find the volume of this solid, first by using x as the variable of integration and then by using y as the variable of integration.