Unit 6
Calculus 1

Volume of Solids: (REVIEW)
Sketch/setup/solve for the volume generated when the region bounded by the given equations is rotated about the specified axis. In part 1, be sure to use the specific method requested. In part 2, you may use any method of choice to solve the problem.

(Part 1)

Use the Disk Method for the following.

1. $y = \frac{1}{x},\ y = 0,\ x = 1,\ x = 5$ is rotated about the ***x-axis***.

2. $y = x^{\frac{4}{3}},\ x = 0,\ y = 3$ is rotated about the ***y-axis***.

Use the Washer Method for the following.

3. $y = \sqrt{x}, y = x^2$ is rotated about the ***x-axis***

4. $y = \sqrt{x} + 2, y = \frac{x}{3} + 2$ is rotated about the ***y-axis***

Use the Shell Method for the following.

5. $y = \sqrt{x}$, x = 0, y = 3 is rotated about the ***y-axis***

6. $y = 6 - x, y = 2x$, y=0 is rotated about the ***x-axis***

(Part 2)

Use any Method of Choice to solve the following.

7. $y = 9 - x^2$, $y = -3x + 9$ is rotated about the ***y-axis***

8. $y = x^3 + 1$, y = 1, x = 2 is rotated about the ***x-axis.***

CHALLENGE: Solve this problem using two <u>different</u> methods for finding Volume.

9. Find the volume of the region bounded by: $y = \sqrt{x} + 1, y = x + 1,\ x = 0$ is rotated about the ***x-axis***.