Section 7.2

1. Find the volume of the solid obtained by revolving the region bounded by \( y = e^x, \ y = 0, \ x = 0, \ x = 1 \) about the \( x \)-axis.

2. Find the volume of the solid obtained by revolving the region bounded by \( y = 3x^2, \ 0 \leq x \leq 2, \ y = 12 \) and \( x = 0 \) about the \( y \)-axis.

3. Find the volume of the solid obtained by revolving the region bounded by \( y = x^2, \ y = 4x \), about the \( x \)-axis, then the \( y \)-axis.

4. Find the volume of the solid obtained by revolving the region bounded by \( y = x^2, \ y = 4 \), about the line \( y = 4 \).

5. Find the volume of the solid obtained by revolving the region bounded by \( x = y^2, \ x = 1 \), about the line \( x = 1 \).

6. Find the volume of the solid obtained by revolving the region bounded by \( y = x, \ y = \sqrt{x} \), about the line \( x = -1 \).

7. Find the volume of the solid \( S \) described here: The base of \( S \) is the region bounded by \( y = x^2 \) and \( y = 4 \). Cross-sections perpendicular to the \( y \)-axis are equilateral triangles.

8. Find the volume of the solid \( S \) described here: The base of \( S \) is the triangular region with vertices \((0, 0), (3, 0)\) and \((0, 2)\). Cross-sections perpendicular to the \( x \)-axis are semi-circles.

9. Find the volume of the solid \( S \) described here: The base of \( S \) is the ellipse \( \frac{x^2}{4} + \frac{y^2}{16} = 1 \). Cross sections perpendicular to the \( y \)-axis are squares.

Section 7.3

10. Find the volume of the solid obtained by rotating the region bounded by the given curve(s) about the specified axis.

   a.) \( y = \frac{1}{x^2}, \ x = 2, \ x = 4, \ y = 0 \) about the \( y \)-axis.