

Solids with known cross sections

Date _____ Period _____

For each problem, sketch the figure, write an integral equation, and then find the volume specified.

- 1) The base of a solid is the region enclosed by the semicircle $y = \sqrt{16 - x^2}$ and the x -axis. Cross-sections perpendicular to the x -axis are squares.

- 2) The base of a solid is the region enclosed by the semicircle $y = \sqrt{49 - x^2}$ and the x -axis. Cross-sections perpendicular to the x -axis are squares.

- 3) The base of a solid is the region enclosed by the circle $x^2 + y^2 = 16$. Cross-sections perpendicular to the x -axis are squares.

- 4) The base of a solid is the region enclosed by the circle $x^2 + y^2 = 9$. Cross-sections perpendicular to the x -axis are squares.

- 5) The base of a solid is the region enclosed by the ellipse $\frac{x^2}{16} + \frac{y^2}{36} = 1$. Cross-sections perpendicular to the x -axis are squares.

- 6) The base of a solid is the region enclosed by the ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1$. Cross-sections perpendicular to the x -axis are squares.

- 7) The base of a solid is the region enclosed by $y = 1$ and $y = \frac{x^2}{4}$. Cross-sections perpendicular to the x -axis are squares.

- 8) The base of a solid is the region enclosed by $y = -\frac{x^2}{9} + 1$ and $y = 0$. Cross-sections perpendicular to the x -axis are squares.