

## Calculus Class Worksheet #4 Unit 11

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### Known Cross Section

In each problem a solid is described. You must

- sketch the base of the solid, showing a typical cross sectional slice,
- write an expression for the volume of this cross sectional slice,
- express the exact volume of the solid as a definite integral, and
- evaluate the integral.

Show all of your work neatly organized on graph paper.

- The base of a solid is the circle  $x^2 + y^2 = 9$ . Each cross section by a plane perpendicular to the x-axis is a square with one side in the base of the solid.**
- The base of a solid is the circle  $x^2 + y^2 = 9$ . Each cross section by a plane perpendicular to the x-axis is a square with one diagonal in the base of the solid.**
- The base of a solid is the circle  $x^2 + y^2 = 9$ . Each cross section by a plane perpendicular to the x-axis is an equilateral triangle with one side in the base of the solid.**