# Section 6.3: The Shell Method

**A. The Shell Method** is an another method for finding the volume of a solid or revolution. To find the volume of a solid of revolution with the shell method, use one of the following

*Where **p** is the **radius function** and **h** is the **height function***

## Vertical Axis of Revolution

$$Volume = V = 2\pi \int_a^b p(x)h(x)dx$$

## Horizontal Axis of Revolution

$$Volume = V = 2\pi \int_c^d p(y)h(y)dy$$

## B. Comparison of Disk and Shell Methods

1. For the disk method, the representative rectangle is always perpendicular to the axis of revolution, whereas for the shell method the representative rectangle is always parallel to the axis of revolution. (See the bottom of page 434)

2. Often, one method is more convenient to use than the other.

Examples: 2, 4, 14, 16, 18