**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**March 26th – 27th, 2012**

**AP Calculus 1, Mrs. Sulkes**

**7.2 and 7:3 Volume: Solid of Revolution**

**Application of the Integral**

If a region in the plane is revolved about a line, the resulting solid is a **solid of revolution**, and the line is called the **axis of revolution**. We will use the integral to find the volume of such a solid.

***I. Vertical Rotation: Disk/Washer Method***

A. The Disk Method (Vertical Rotation):

Practice:

1. Find the volume of a solid formed by revolving the region bounded by the graph of  and the x-axis on the interval [0,1] about the axis. Just set up the integral, do not evaluate.

2. Find the volume of the solid formed by revolving the region bounded by  and  about the line . Just set up the integral, do not evaluate.

B. The Washer Method (Vertical Rotation):

Practice:

1. Find the volume of the solid formed by revolving the region bounded by the graphs of  and about the axis. Just set up the integral, do not evaluate.

2. Find the volume of the solid formed by revolving the region bounded by the graphs of and about the line . Just set up the integral, do not evaluate.

***II. Horizontal Rotation: Disk/Washer Method or Shell Method***

A. The Disk/Washer Method (Horizontal Rotation):

Practice:

1. Find the volume of a solid formed by revolving the region bounded by the graph of , the axis and the -axis about the -axis. Just set up the integral, do not evaluate.

B. Shell Method (Horizontal Rotation):

Practice:

1. . Find the volume of a solid formed by revolving the region bounded by the graph of , the axis and the -axis about the -axis. Just set up the integral, do not evaluate.

2. Find the volume of a solid formed by revolving the region bounded by the graph of , the axis, the axis, and the line about the line axis. Just set up the integral, do not evaluate.

3. Find the volume of a solid formed by revolving the region bounded by the graph of , the axis, the axis, and the line about the line . Just set up the integral, do not evaluate.