Math 16B
Kouba
Summary of Finding Volumes of Solids of Revolution

1.) Make a LARGE drawing of the flat region R , clearly labeling the equations and points of intersection.

2.) Spin region R about the given axis and visualize in your mind's eye what the solid looks like. A rough sketch of the solid is helpful.

3.) Decide whether to slice the solid vertically at x or horizontally at y in order to create circular cross-sections.

4.) Determine if the circular slice is a solid circle of radius r and Area $= \pi r^2$, or a circle with a whole in it (donut) of Area $= \pi R^2 - \pi r^2$.

5.) Clearly mark r and/or R on your original graph together with either x or y.

6.) Write r or r and R as equations in either variable x or variable y.

7.) Finally, set up the equation for Volume by integrating the Area Equation πr^2 or $\pi R^2 - \pi r^2$ using dx or dy, the appropriate interval, and your equations from step 6.