

Disks/Washers method summary

Note: This summary is for the case when the axis of rotation is parallel to the x -**axis**. In this case the cross-sections (disks or washers) are perpendicular to the x -axis. The integration variable is x .

Step 1. • Sketch the region to be revolved (2 dim-I).
• Then *roughly* sketch the 3 dim-I solid of revolution. Remember, you will not be judged on your artistic abilities here!
• Find limits of integration.

Step 2. Find the cross-section area $A(x)$:
 $A(\mathbf{x}) = \pi r_x^2$ if the cross-section is a disk,
 $A(\mathbf{x}) = \pi(\mathbf{R}_x^2 - r_x^2)$ if the cross-section is a washer.

Step 3. Set up the integral: $V = \int_{\bullet}^{\bullet} A(x) dx$

Step 4. Integrate!

Step 5. Sit back, relax, and enjoy the rest of your day :).