

Calculus 2, Chapter 6 Study Guide

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The following is a *brief* list of topics covered in Chapter 6 of *Thomas' Calculus*. Test questions will be chosen directly from the text. This list is not meant to be comprehensive, but only gives a list of several important topics. I reserve the right to ask you definitions and theorems on the tests. If I do so, then I will choose from the **bold-faced** items below.

6.1. Volumes Using Cross-Sections. Volume of a solid of known cross-sectional area, disk method, washer method, rotation about x -axis, rotation about y -axis, rotation about any given horizontal or vertical line.

6.2. Volumes Using Cylindrical Shells. The shell method for solids of revolution.

6.3. Arc Length. Smooth curve, computation of arc length.

6.4. Areas of Surfaces of Revolution. Area of surface of revolution about an axis, horizontal line, or vertical line.

6.5. Work and Fluid Forces. Work, Hooke's Law, spring constant, tank problems, force on a plate submerged in a fluid.

6.6. Moments and Centers of Mass. Center of mass of a straight wire of variable density, center of mass of a region in the plane, Pappus's Theorem for volumes, Pappus's Theorem for surface areas.