Problem Set 2   Calculus 3   Due 10/23/06

You are encouraged to work in groups of two to four on this assignment and make a single group submission. Each problem is worth 5 points. For full credit indicate clearly how you reached your answer. All work must be legible and submitted on clean paper without ragged edges.

1. Consider the solid created by diagonally slicing a rectangular box with a plane somewhere between its base and top. Let the base have length l and width w, and the vertical edges be cut off with heights a, b, c, and d (and feel free to suppose that these heights are arranged in ascending order if you like). Set up an iterated integral and use it to find the volume of the truncated box.

2. Do #28 in §15.3.

3. Set up an iterated integral and evaluate it to find the volume between the cone $z^2 = x^2 + y^2$ and the sphere $x^2 + y^2 + z^2 = 4$.

4. Do #26 in §15.4.