Name: _____

Instructions: Attach this page to the front of your written solutions. Show all work and sketch figures or plots if necessary for each problem. Solutions should be written clearly and in a well-ordered manner. Solutions that are unclear or unreadable will receive a zero. Collaboration is encouraged, but be sure to submit your own work. Homework will be assessed by a random sampling of questions. Please hand-in your work no later than 11/11.

1. In section 15.7 of the textbook, complete problems 15, 19, and 30.
2. In section 15.8 of the textbook, complete problems 10, 24, and 48.
3. In section 15.9 of the textbook, complete problems 4, 15, and 17.
4. A cylindrical hole of length $2h$ is drilled through the center of a sphere of radius a. What is the volume of the remaining material?
5. Set up and evaluate a triple integral for the volume of a "frustrated cone" (see image below) in cylindrical coordinates. Assume the base of the frustrated cone has a circular radius of R_1, the top of the frustrated cone has a circular radius of R_2, and the height is h. Compare the answer you find to one constructed using the geometric formulas for cones.