***Math* 2414- *Calculus* II *Homework Sec* 1.3-4 Name:**

1. The region *R* in the first quadrant bounded by the parabola  and the coordinate axes is revolved about the *y-*axis to produce a dome-shaped solid. Find the volume of the solid in the following ways.
2. Apply the disk method and integrate with respect to *y*.
3. Apply the shell method and integrate with respect to *x*.
4. What is the volume of the solid whose base is the region in the first quadrant bounded by , , and the *x-*axis, and whose cross sections perpendicular to the base and parallel to the *y-*axis are semicircles?
5. What is the volume of the solid whose base is the region in the first quadrant bounded by , , and the *y-*axis, and whose cross sections perpendicular to the base and parallel to the *x-*axis are square?
6. The region bounded by the curves  and  is revolved about the *x-*axis. What is the volume of the solid that is generated?
7. The region bounded by the curves , , and the line  is revolved about the *y-*axis. Find the volume of the resulting solid by
8. Integrating with respect to *x* and
9. Integrating with respect to *y*.
10. The region bounded by the curves , , and the *y-*axis is revolved about the *x-*axis. What is the volume of the solid that is generated?
11. The region bounded by the graphs of , , and  in the first quadrant is revolved about the *y-*axis. What is the volume of the resulting solid?
12. The region bounded by the curves , , for  is revolved around the *x-*axis. What is the volume of the solid that is generated?
13. The region bounded by  and the *x-*axis over the interval  is revolved about the *y-*axis. What is the volume of the solid that is generated?
14. The region bounded by the graph  and  is revolved about the line  and the line . Find the volumes of the resulting solids. Which one is greater?