

Quiz Date: October 02, 2017

Instructions: The following exercises are similar to those found in the course text book. This homework is not due for a grade, but you should know how to do all of them and be able to show your work for each. You can expect at least one of these problems to appear on an in-class quiz on the date listed above.

7.2 - Volumes

1. Find the volume of the solid obtained by rotating the region bounded the set of curves $\{y = \ln(x), y = 1, y = 2, x = 0\}$ about the y -axis.
2. Find the volume of the solid obtained by rotating the region bounded by the set of curves $\{y = x, y = \sqrt{x}\}$ about the line $y = 1$.
3. Find the volume of the solid obtained by rotating the region bounded by the set of curves $\{y = \frac{1}{x}, x = 1, x = 2, y = 0\}$ about the x -axis.
4. Find the volume of a frustum of a right circular cone with height h , lower base radius R , and top radius r . (See Figure 1)

7.3 - Volumes by Cylindrical Shells

5. Use the method of cylindrical shells to find the volume of the solid obtained by rotating the region bounded by the set of curves $\{y = x^3, y = 0, x = 1, x = 2\}$ around the y -axis.
6. Use the method of cylindrical shells to find the volume of the solid obtained by rotating the region bounded by the set of curves $\{y = x^3, y = 8, x = 0\}$ around the x -axis.
7. Use the method of cylindrical shells to find the volume of the solid obtained by rotating the region bounded by the set of curves $\{y = x^4, y = 0, x = 1\}$ about the line $x = 2$.
8. Use the method of cylindrical shells to find the volume of the solid obtained by rotating the region bounded by the set of curves $\{y = 4x - x^2, y = 3\}$ about the line $x = 1$.

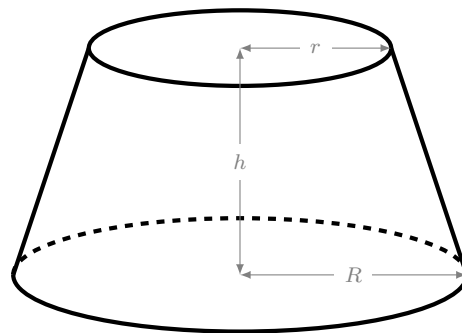


Figure 1: Frustum of a right circular cone.