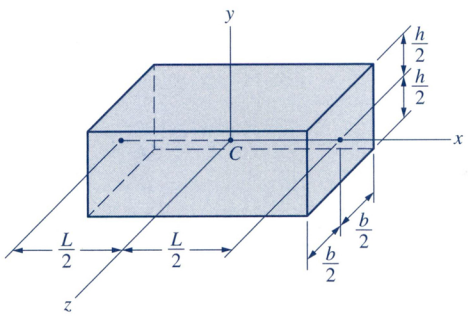
Centroid of Volumes of Common Shapes. Formulas for computing the volumes and the locations of centroids of common geometric shapes, such as cylinders, spheres, hemispheres, circular cones, and so on, have been determined mathematically and are listed in Table 7–1.

Centroid of Composite Volumes. A volume that can be divided into several component volumes of shapes such as those listed in Table 7–1 is called a *composite volume.* The coordinates of the centroid $C(\bar{x}, \bar{y}, \bar{z})$ of a composite volume may be computed from the following equations:

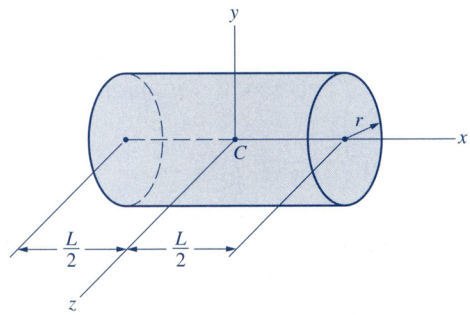
TABLE 7–1 Centroids of Volumes of Common Shapes

Rectangular Prism



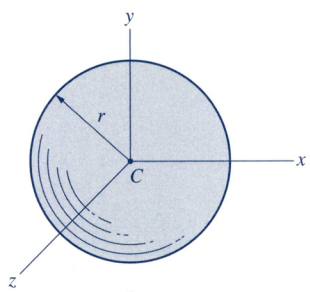
$V = bhL$

Cylinder



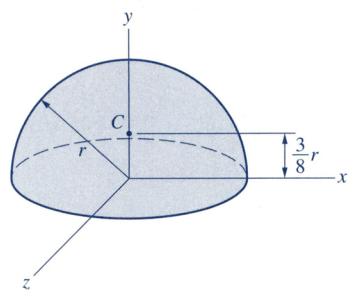
$V = \pi r^2 L$

Sphere



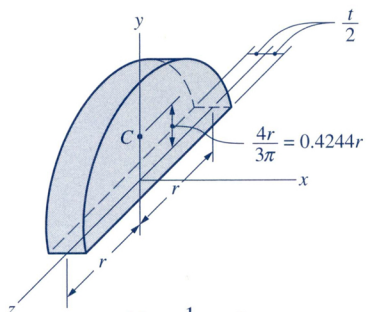
$V = \frac{4}{3}\pi r^3$

Hemisphere



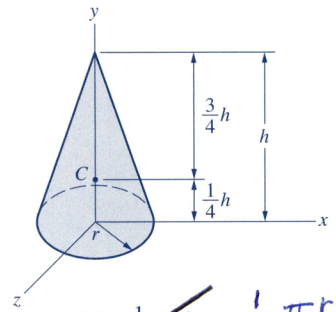
$V = \frac{2}{3}\pi r^3$

Semicircular Disk



$V = \frac{1}{2}\pi r^2 t$

Circular Cone



$V = \frac{1}{2}\pi r^2 h$ $\frac{1}{3}\pi r^2 h$