General Cone (C)

A cone whose base has area B and whose height is H has volume V given by

$$V = \frac{1}{3}BH.$$

Note that H is the distance from the vertex of the cone to the plane containing the base. Determining H can be a problem in itself.

The formula applies to all cones. Here are some special cases.

If the cone is a circular cone with base of radius R then $B = \pi R^2$ and the volume is

$$V_{\text{circular cone}} = \frac{\pi}{3}R^2H$$

If the cone is a pyramid with a rectangular base of length L and width W then $B = LW$ and the volume is

$$V_{\text{pyramid}} = \frac{1}{3}LWH.$$

If the cone has a elliptical base and the ellipse has major and minor axes of lengths M and m respectively, then the $B = \pi Mm/4$ and

$$V_{\text{elliptical cone}} = \frac{\pi}{12}mMH$$