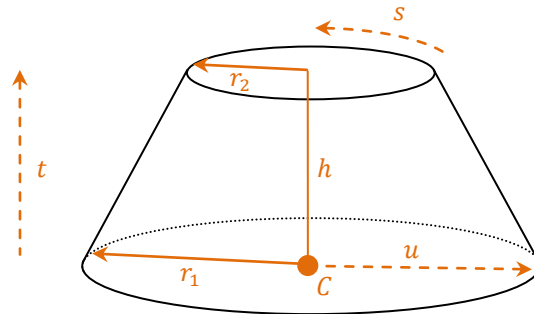


## Parametric Cone (Volume)

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The volume of a conic section can be described in terms of  $x$ ,  $y$ , and  $z$  by introducing 3 parameters ( $s$ ,  $t$ , and  $u$ ). This equation describes the conic section as a vertically pointing cone with a center point  $C$ , a top radius  $r_1$ , a bottom radius  $r_2$  and a height of  $h$ .



$$\begin{aligned}x &= x_C + ((r_1 \cdot (1 - t) + r_2 \cdot t) \cdot \cos(2\pi \cdot s)) \cdot u \\y &= y_C + ((r_1 \cdot (1 - t) + r_2 \cdot t) \cdot \sin(2\pi \cdot s)) \cdot u \\z &= z_C + d \cdot t\end{aligned}$$

An example of the parametric equations defining the conic volume is shown below. The  $s$ ,  $t$ , and  $u$  values are sampled at an even intervals.

