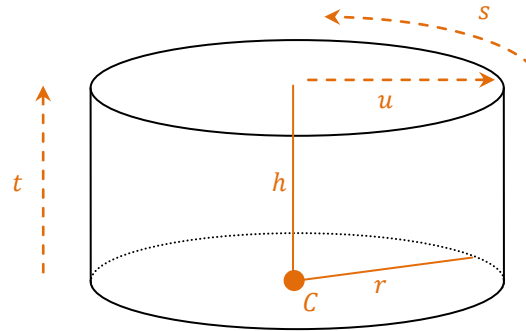


## Parametric Cylinder (Volume)

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



$$\begin{aligned}x &= x_c + r \cdot u \cdot \cos(2\pi \cdot s) \\y &= y_c + r \cdot u \cdot \sin(2\pi \cdot s) \\z &= z_c + h \cdot t\end{aligned}$$

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

