$$\mathrm{cyl}_x(r,l,\varphi) := \begin{pmatrix} l \\ r\cdot\cos(\varphi) \\ r\cdot\sin(\varphi) \end{pmatrix} \qquad \mathrm{cyl}_y(r,l,\varphi) := \begin{pmatrix} r\cdot\cos(\varphi) \\ l \\ r\cdot\sin(\varphi) \end{pmatrix} \qquad \mathrm{cyl}_z(r,l,\varphi) := \begin{pmatrix} r\cdot\cos(\varphi) \\ r\cdot\sin(\varphi) \\ l \end{pmatrix}$$

$R := 20$ $\qquad d := \dfrac{FRAME}{2} + 15$ $\qquad$ For animations delete the "15"

First attempt was d=0 meaning that the axis intersect. So later every d was replaced by R-d to duplicate the situation in the posting

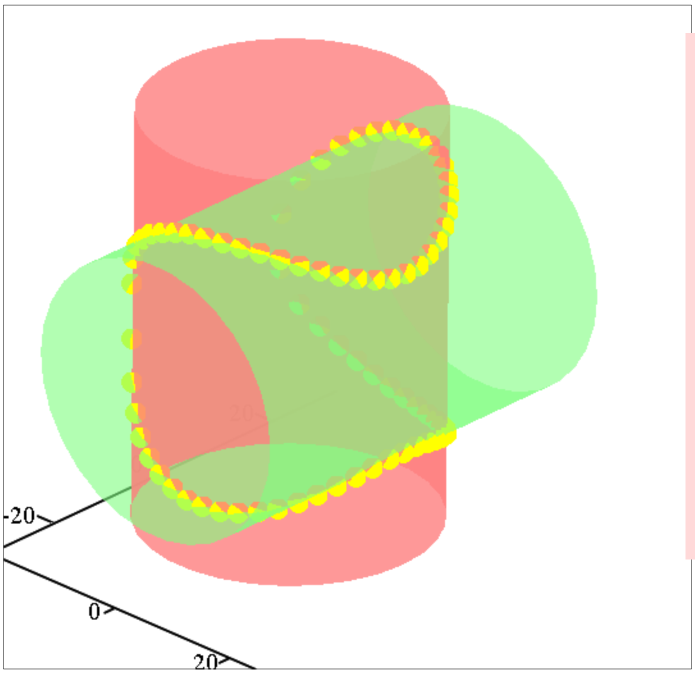
$$\mathrm{Zyl1}(a,b) := \mathrm{cyl}_z(R,a,b) \qquad \mathrm{Zyl2}(a,b) := \mathrm{cyl}_y(R,a,b) + \begin{pmatrix} R-d \\ 0 \\ 0 \end{pmatrix}$$

$$D(r,d,\varphi) := \begin{bmatrix} r\cdot\cos(\varphi) \\ r\cdot\sin(\varphi) \\ \mathrm{if}\left[r^2 - (r\cdot\cos(\varphi) - r + d)^2 \ge 0, \sqrt{r^2 - (r\cdot\cos(\varphi) - r + d)^2}\cdot[2\cdot(\varphi > 0) - 1], 1000\right] \end{bmatrix}$$

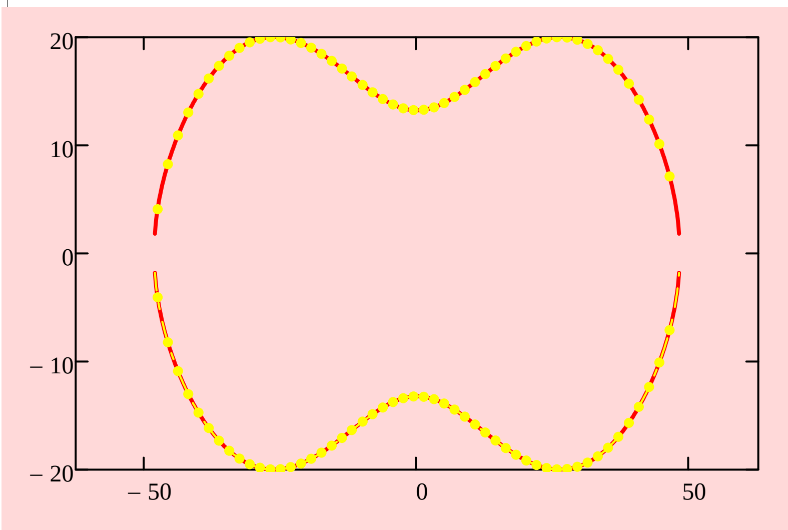
This is very quick and very dirty - nothing you should learn from. If z would be complex the value is set to 1000, out of sight. Therfore we should not connect the points

$P(\psi) := D(R,d,\psi)$

$$\mathrm{vereb}(r,d,x) := \sqrt{r^2 - \left(r\cdot\cos\left(\frac{x}{r}\right) - r + d\right)^2}$$



Zyl1, Zyl2, P



R = 20 $\quad$ d = 15.0