

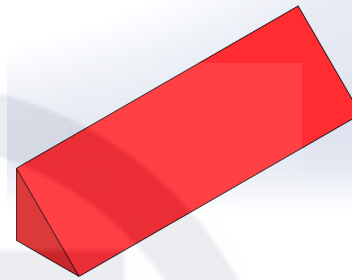
## Versuch "Trichterberechnung":

$$\underline{L} := 1.5 \cdot \text{m} \quad \underline{b} := 0.8 \cdot \text{m} \quad \underline{hr} := 0.9 \cdot \text{m} \quad \underline{d} := 0.4 \cdot \text{m}$$

### Teil 1:

$$V1 := \frac{\frac{d}{2} \cdot \frac{d}{2}}{2} \cdot \text{hr}$$

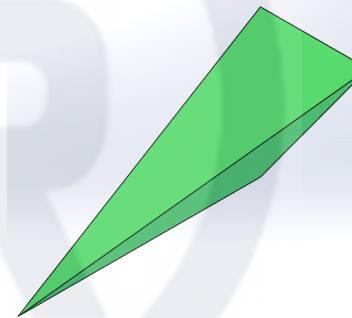
$$V1 = 0.018 \cdot \text{m}^3$$



### Teil 2:

$$V2 := \frac{\frac{b}{2} \cdot \left( \frac{L}{2} - \frac{d}{2} \right)}{2} \cdot \frac{\text{hr}}{3}$$

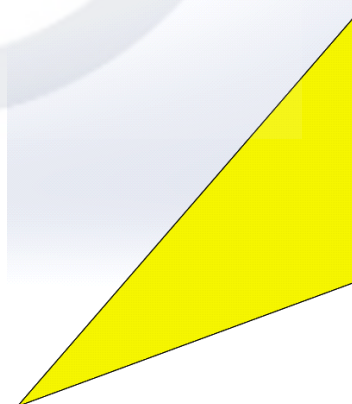
$$V2 = 0.033 \cdot \text{m}^3$$



### Teil 3:

$$V3 := \frac{\left( \frac{b}{2} - \frac{d}{2} \right) \cdot \frac{L}{2}}{2} \cdot \frac{\text{hr}}{3}$$

$$V3 = 0.0225 \cdot \text{m}^3$$



**Teil 4 und Teil 5:**

$$\text{Grundfläche} := \sqrt{\left(\frac{d}{2}\right)^2 + \left(\frac{d}{2}\right)^2} \cdot \text{hr}$$

$$\alpha := \text{atan}\left(\frac{\frac{b}{2}}{\frac{L}{2} - \frac{d}{2}}\right)$$

$$\beta := 180^\circ - 45^\circ - \alpha$$

$$\gamma := 180^\circ - \beta$$

$$\text{Hypotenuse} := \sqrt{\left(\frac{b}{2}\right)^2 + \left(\frac{L}{2} - \frac{d}{2}\right)^2}$$

$$\text{Höhe\_Teil4} := \text{Hypotenuse} \cdot \sin(\gamma)$$

$$V4 := \frac{\text{Grundfläche} \cdot \text{Höhe\_Teil4}}{3}$$

$$A\_Kreissegment := \frac{\left(\frac{d}{2}\right)^2 \cdot \pi}{4} - \frac{\left(\frac{d}{2} \cdot \frac{d}{2}\right)}{2}$$

$$V5 := \frac{A\_Kreissegment \cdot \text{hr}}{3}$$

**Volumen total:**

$$V_{\text{tot}} := 4 \cdot (V1 + V2 + V3 + V4 + V5)$$

$$\text{Grundfläche} = 0.2546 \text{ m}^2$$

$$\alpha = 36.0274^\circ$$

$$\beta = 98.9726^\circ$$

$$\gamma = 81.0274^\circ$$

$$\text{Hypotenuse} = 0.6801 \text{ m}$$

$$\text{Höhe\_Teil4} = 0.6718 \text{ m}$$

$$V4 = 0.057 \cdot \text{m}^3$$

$$A\_Kreissegment = 0.0114 \text{ m}^2$$

$$V5 = 0.0034 \cdot \text{m}^3$$

$$V_{\text{tot}} = 0.5357 \cdot \text{m}^3$$

