

$$d_{\text{eau}} = 1$$

$$d_{\text{huile}} = 0,9$$

$$d_{\text{acier}} = 7,85$$

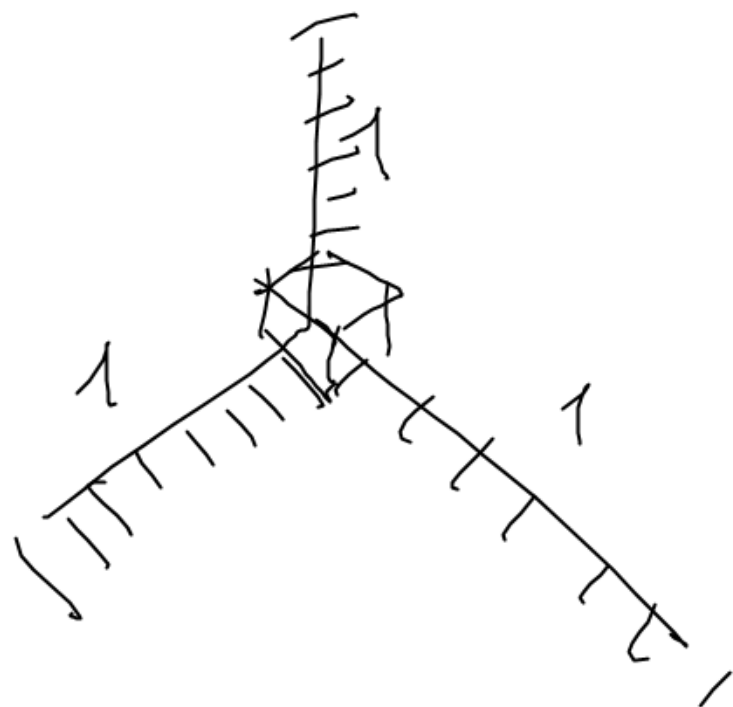
$$d_{\text{alu}} = 2,3$$

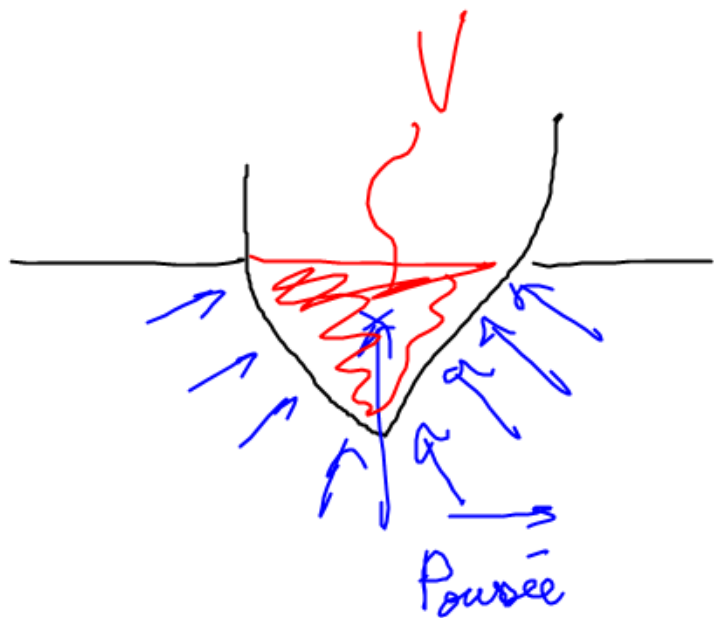
$$d_x = \frac{\rho_x}{\rho_{\text{eau}}}$$

ρ_x (kg/m³)
 ρ_{eau} (kg/m³)

$$d_x \cdot \rho_{\text{eau}} = \rho_x$$

$$\rho_{\text{eau}} = 1000 \frac{\text{kg}}{\text{m}^3}$$





$$P = m \cdot g$$

$\rho = \frac{m}{V}$ (kg/m³)
 $m = \rho \cdot V$ (kg)
 $P = \rho \cdot V \cdot g$ (N)

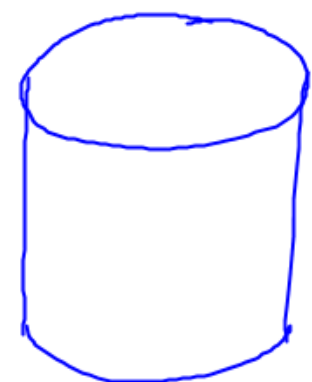
Poussée d'Archimède =
 ou poids du volume de
 fluide déplacé.

$$P_{\text{poussée}} = P_{\text{fluide déplacé}}$$

$$= m_{\text{fluide}} \cdot g$$

$$P_{\text{poussée}} = \rho_{\text{fluide}} \cdot V \cdot g$$

ex calcul de masse:



Ø d = 18 mm

matière : aluminium

$$\rho_{\text{alu}} = 2300 \text{ kg/m}^3$$

Calculer le volume
du cylindre:

$$\begin{aligned} V &= \pi \cdot R^2 \cdot h \\ &= \pi \cdot \left(\frac{18}{2}\right)^2 \cdot 70 \\ &\approx 17812 \text{ mm}^3 \end{aligned}$$

Formulaire

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$$P = m \cdot g$$

Units: N, kg, $\frac{N}{kg}$

$$m = \rho \cdot V$$

Units: $\frac{kg}{m^3}$, $\frac{m^3}{m^3}$, $\frac{kg}{m^3}$

$$P = 2 \cdot \pi \cdot R$$

Units: m, m, m

$$\begin{aligned} S &= \pi \cdot R^2 \\ &= \frac{\pi \cdot D^2}{4} \end{aligned}$$

Units: m^2 , $(m)^2$

$$1 \text{ m} = 1000 \text{ mm} = 10^3 \text{ mm}$$

$$1 \text{ mm} = \frac{1}{1000} \text{ m} = \frac{1}{10^3} \text{ m} = 0,001 \text{ m}$$

$$10^a \cdot 10^b = 10^{a+b}$$

$$(10^a)^b = 10^{a \cdot b}$$

$$= 10^{-3} \text{ m}$$

$$1 \text{ m}^2 = (10^3)^2 \text{ mm}^2 = 10^6 \text{ mm}^2$$

$$1 \text{ mm}^2 = (10^{-3})^2 \text{ m}^2 = 10^{-6} \text{ m}^2$$

$$1 \text{ m}^3 = (10^3)^3 \text{ mm}^3 = 10^9 \text{ mm}^3$$

$$1 \text{ km} = 10^3 \text{ m} = 10^3 \cdot 10^3 \text{ mm} = 10^6 \text{ mm}$$