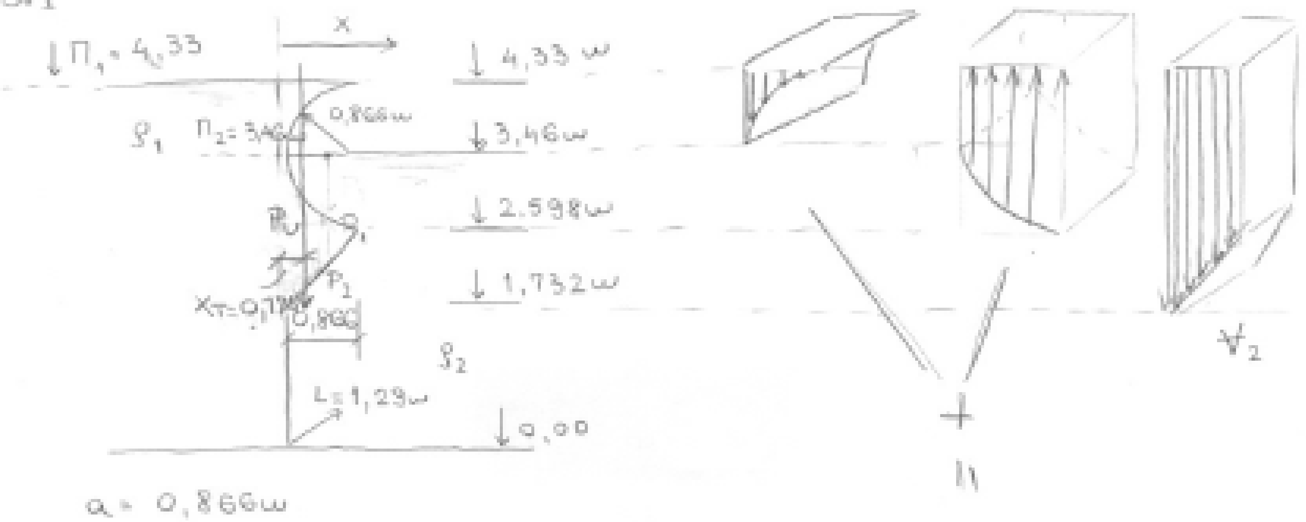
3.1

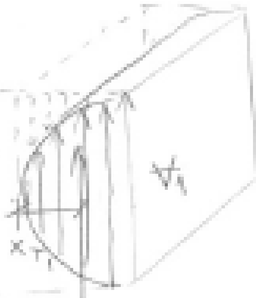


$a = 0{,}866\,m$

$\rho_1 = 0{,}943\,kg/dm^3$

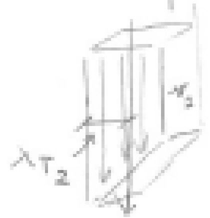
$\rho_2 = 1{,}043\,kg/dm^3$

$V_1 = \frac{r^2 \pi}{2} \cdot L = 1{,}518\,m^3$ ✓



$P_1 = \rho_1 \cdot g \cdot V_1 = 14{,}042\,kN$ ✓

$V_2 = a \cdot b \cdot L + \frac{r \cdot a}{2} \cdot L = 2{,}428\,m^3$ ✓

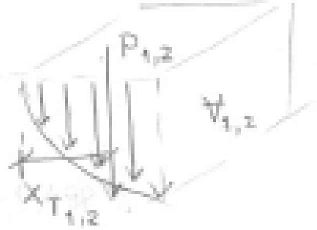


$P_2 = \rho_1 g \cdot V_2 = 22{,}46\,kN$ ✓

$x_{T_1} = 0{,}866 - \frac{4 \cdot r}{3\pi} = 0{,}498\,m$ ✓

$x_{T_2} = \frac{1}{1{,}874}\left(1{,}499 \cdot 0{,}433 + 0{,}374 \cdot 0{,}28\right) = 0{,}402\,m$ ✓

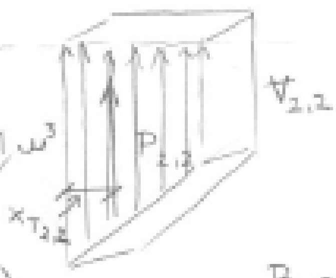
$V_{1,2} = \frac{0{,}866^2 \cdot \pi}{4} \cdot 1{,}29 = 0{,}759\,m^3$ ✓



$P_{1,2} = \rho_2 \cdot g\, V_{1,2} = 7{,}765\,kN$ ✓

$x_{T_{1,2}} = 0{,}866 - \frac{4r}{3\pi} = 0{,}498\,m$ ✓

$V_{2,2} = \frac{0{,}866^2}{1} \cdot 1{,}29 + \frac{0{,}866^2}{2} \cdot 1{,}29 = 1{,}451\,m^3$ ✓



$P_{2,2} = \rho_2 g V_{2,2} = 14{,}84\,kN$ ✓

$x_{T_{2,2}} = \frac{1}{1{,}124}\left(0{,}749 \cdot 0{,}433 + 0{,}374 \cdot 0{,}28\right) = 0{,}382\,m$ ✓

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$P_{v_2} = +P_1 - P_2 + P_{1,2} + P_{2,2} = -1{,}343\,kN$ ✓

$$x_T = \frac{P_1 \cdot x_{T_1} - P_2 \cdot x_{T_2} - P_{1,2} \cdot x_{T_{1,2}} + P_{2,2} \cdot x_{T_{2,2}}}{P_J} = 0,174 \text{ ul} \checkmark$$