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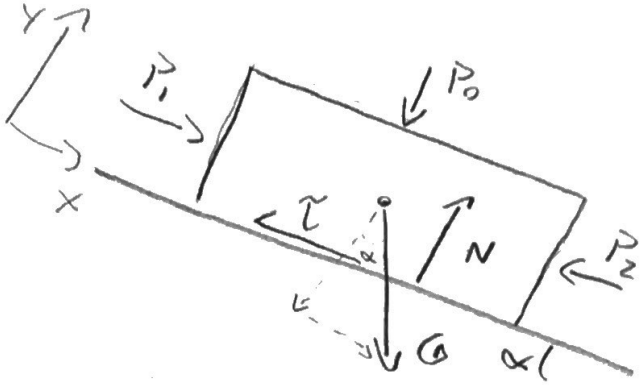
Oppg. 1a) $V_x(0) = 0$, Stemmer ☺

$P(h) = P_0$, Stemmer ☺

1(b)



$$\sum F_x = \dot{m}_2 v_2 - \dot{m}_1 v_1$$

Antar inkompressibelt : $m_1 = m_2$

$v = \frac{\dot{m}}{A}$, $h_1 = h_2 \rightarrow v_1 = v_2$

$$\sum F_x = \dot{m}(v_1 - v_2) = 0 \quad \square$$

$$\sum F_y = \dot{m}_{UT} v_{UT} - \dot{m}_{INN} v_{INN} = 0$$

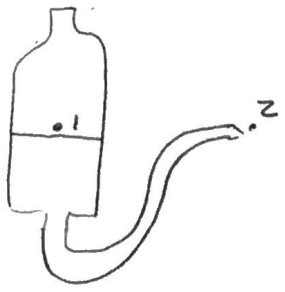
Oppg 2a)

$$P_1 = P_2 = \frac{100N + P_{atm} A_1}{A_1}$$

$A_1 = \frac{\pi}{4} D^2$

$P_2 = 2,97 \text{ bar}$

2b)



I) $\frac{P_1}{\rho} + \frac{U_1^2}{2} + gz_1 = \frac{P_2}{\rho} + \frac{U_2^2}{2} + gz_2$

II) $U_1 A_1 = U_2 A_2$

$A_1 = \frac{\pi}{4} D_1^2$, $A_2 = \frac{\pi}{4} D_2^2$

enter $z_1 \approx z_2$

$P_1 = 2{,}4\,Bar + P_{atm}$

$P_2 = P_{atm}$

I) $\frac{2(P_1 - P_2)}{\rho} = U_2^2 - U_1^2$

II → I) $\frac{2(P_1 - P_2)}{\rho} = U_2^2 \left(1 - \frac{D_2^2}{D_1^2}\right)$

$U_2 = 21{,}9\ m/s$

$Re_E = \frac{UL}{\nu} = 219000$

2c) $K_c = 0{,}55\left(1 - \frac{A_1}{A_1}\right)$, $\frac{P_1}{\rho} + \frac{U_1^2}{2} + gz_1 = \frac{P_2}{\rho} + \frac{U_2^2}{2} + gz_2 + K_c$

$U_2^2 = \frac{2(P_1 - P_2)}{\rho\left(1 - \frac{D_2^2}{D_1^2}\right)} - \frac{2K_c}{1 - \frac{D_2^2}{D_1^2}}$

$U_2 = 21{,}89\ m/s$