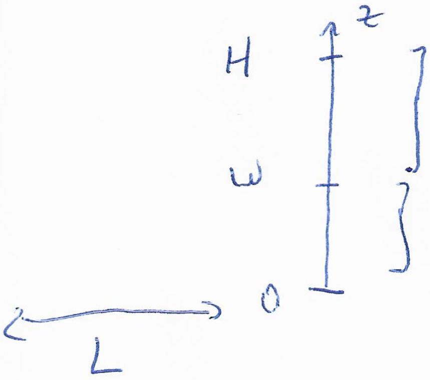
$$\frac{dp}{dz} = -G\rho = R\frac{d\rho}{dz} \rightarrow \rho(z) = \text{const.}\, e^{-z/\sigma}, \quad \sigma = \frac{R}{G}$$

$$\int_{z_0}^{z_1} \rho(z)\,dz = \int_{z_0}^{z_1} \underbrace{\rho_0}_{= \rho(z_0)} e^{-\frac{z-z_0}{\sigma}}\,dz = -\rho_0\,\sigma\left[e^{-(z_1-z_0)/\sigma} - 1\right]$$

Sei $\int_{z_0}^{z_1} \rho(z)\,dz = \mu \Rightarrow \rho(z) = \dfrac{\mu}{\sigma\left(1-e^{-(z_1-z_0)/\sigma}\right)}\, e^{-(z-z_0)/\sigma}$



Fluid 2, Masse $M_2 = N_2 m_2 = \mu_2 L$

Fluid ~~2~~ 1, Masse $M_1 = N_1 m_1 = \mu_1 L$

$$\rho_1 = \rho_{0,1}\, e^{-z/\sigma_1}, \quad \rho_{0,1} = \frac{\mu_1}{\sigma_1\left(1-e^{-w/\sigma_1}\right)}$$

$$\rho_2 = \rho_{w,2}\, e^{-(z-w)/\sigma_2}, \quad \rho_{w,2} = \frac{\mu_2}{\sigma_2\left(1-e^{-(H-w)/\sigma_2}\right)}$$

$$p_1(w) = p_2(w) \Rightarrow R_1 \frac{\mu_1 e^{-w/\sigma_1}}{\sigma_1\left(1-e^{-w/\sigma_1}\right)} = R_2 \frac{\mu_2}{\sigma_2\left[1-e^{(H-w)/\sigma_2}\right]}$$

Lin.: $\quad R_1 \dfrac{\mu_1}{w} \approx R_2 \dfrac{\mu_2}{H-w}$

$w/\sigma_1 \ll 1$

$\dfrac{H-w}{\sigma_2} \ll 1 \quad \rightarrow \quad \dfrac{R_1}{R_2} \approx \dfrac{\mu_1}{\mu_2}\,\dfrac{w}{H-w}$