③ $T_{H_2O} = 25°C$

$L = 6m$

$D = 100mm = 0,1m$

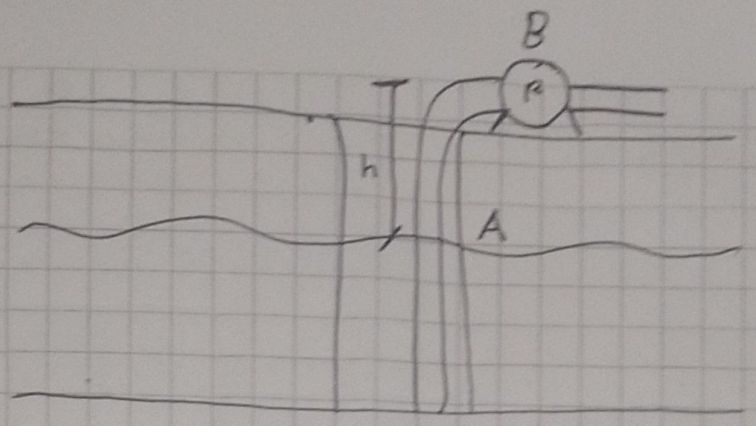
$f = 0,02$

Cavitación = ?

$V = 4 m/s$

$h = 4m$

$P_{vapor} = 3,17 KPa$



$$\frac{P_1}{\gamma} + \frac{V_1^2}{2g} + z_1 + h_p = \frac{P_2}{\gamma} + \frac{V_2^2}{2g} + z_2 + h_{f_1} + h_{f_2} + h_f$$

($V_1 = 0$, $h_p = 4m$)

$$\frac{P_2}{\gamma} = \frac{P_2}{\gamma} + z_2 + h_f$$

$$\frac{P_2}{\gamma} = \frac{P_1}{\gamma} - z_2 - h_f - \frac{V_2^2}{2g}$$

$$\frac{P_2}{\gamma} = \frac{101,325 Pa}{\gamma} - 4m - 0,978m - 0,815m$$

$$P_2 = 44,51 KPa$$

$$h_f = 0,02\left(\frac{4 m/s^2}{2,9800 m/s^2}\right)\left(\frac{6m}{0,1m}\right) = 0,978m$$

$$NPSH = \left(\frac{P_2}{\gamma} + \frac{V_2^2}{2g}\right) - \frac{PV}{\gamma}$$

$$= \frac{44,51 KPa}{9806 \frac{N}{m^3}} + \frac{4 m/s^2}{2(9,806 m/s^2)} - \frac{3,17 KPa}{9806 \frac{N}{m^3}}$$

$$= 5,032 m > 2m$$

La cabeza disponible es mayor a la requerida por la bomba, por lo que no presenta cavitación