$Q = 800 l/h$

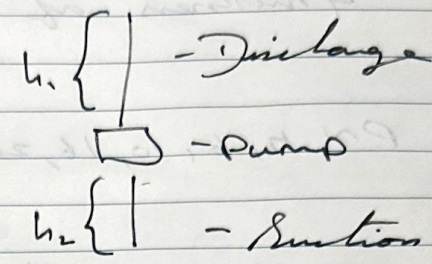
$Q = 0.222 l/s$ ——— (1)

Suction head (h_2)

Discharge head (h_1)

friction loss (f)

Assum = 40%



Actual head of the pump

$$h = (h_1 + h_2)(100 + F)\%$$

where

$h_1 = 400 m$

$h_2 = 25 m$

$f = 40\%$

$$h = (400 + 25)(100 + 40)\%$$

$$= 425 \times 1.4$$

$$h = 594 m$$ ——— (2)

pump efficiency (P_e) = 80%

motor eff (M_e) = 90%

$$\text{pump Size (H.P)} = \frac{(Q \times h)}{75 \times (P_e \times M_e)}$$

$$= \frac{0.222 \times 594}{75 \times (0.8 \times 0.9)}$$

$$= \frac{131.87}{54}$$

$$= 2.4 \text{ H.P} \text{ ——— Ans.}$$

Apx 3 to 4 H.P Suitable for the Supply.