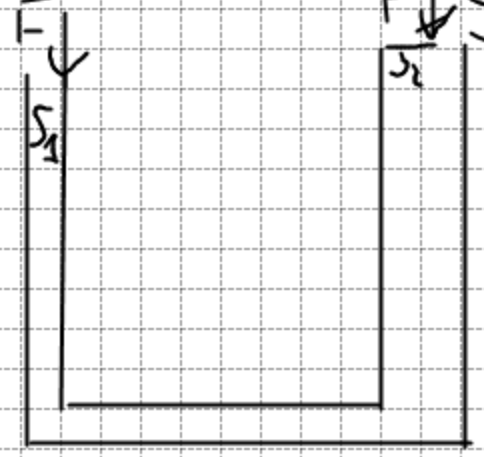

$$F \downarrow S = P_1 - P_a$$

P

$$p = h d g$$

$$p = \frac{F}{S}$$

$$p_1 S_1 = p_2 S_2$$

$$S_1 < S_2$$

$$\frac{S_1}{S_2} = \frac{p_2}{p_1}$$

$$S_1 \cdot h_1 \cdot d_1 \cdot g = h_2 \cdot d_2 \cdot g \cdot S_2$$

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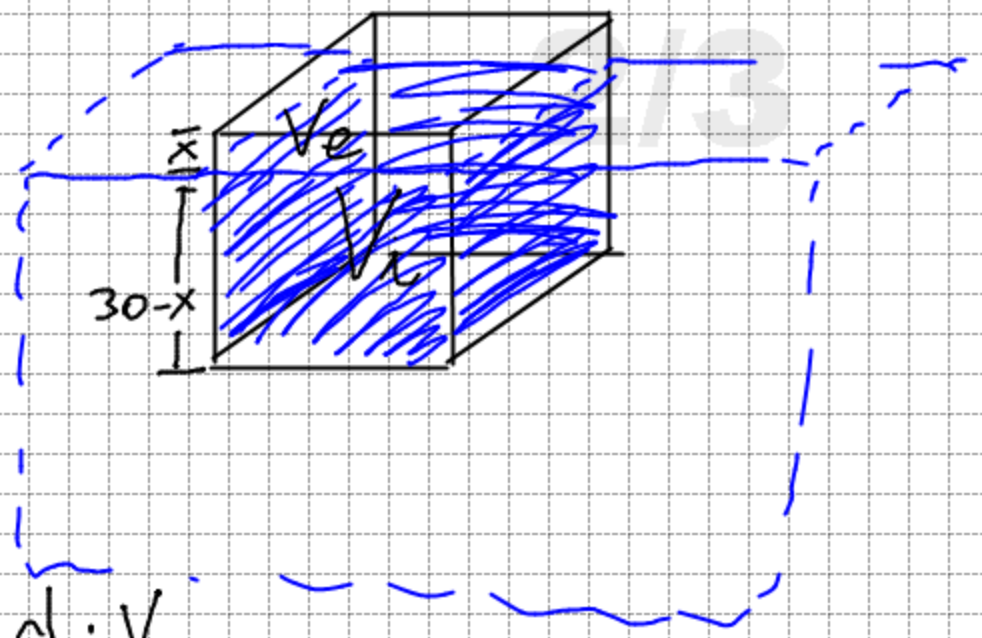
$h = 30m$

$S = 50m^2$

$d_g = 920 \frac{kg}{m^3}$

$d_m = 1030 \frac{kg}{m^3}$



$P = m \cdot g \qquad m = d \cdot V$

$P = g \cdot d \cdot V \qquad V = 30m \cdot 50m^2 = 1500m^3$

$P = 9,81 \frac{m}{s^2} \cdot 920 \frac{kg}{m^3} \cdot 1500m^3 = 13537800 N = 1,35 \cdot 10^7 N$

$S_a = d_a V_i \cdot g \qquad P = S_a \qquad g \cdot d \cdot V = d_a \cdot V_i \cdot g$

$g \cdot d_g (V_i + V_e) = d_a \cdot V_i \cdot g \qquad \frac{V_i + V_e}{V_i} = \frac{d_a}{d_g}$

$1 + \frac{V_e}{V_i} = \frac{d_a}{d_g} \qquad 1 + \frac{V_e}{V_i} = 1,12 \qquad \frac{V_e}{V_i} = 0,12 = 12\%$

$\frac{V_e}{V_i} = 12\% \qquad \frac{x \cdot S}{(30-x) \cdot S} = 0,12 \qquad x = 3,6 - 0,12x$

$1,12x = 3,6 \qquad x = 3,21m$

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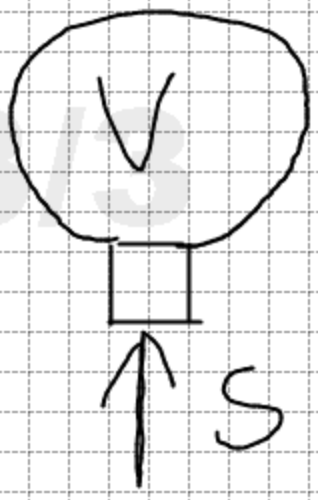
$V = 500\ m^3$ $\quad S = ?$

$d_e = 0{,}18\ Kg/m^3$

$d_A = 1{,}29\ Kg/m^3$



$S_A = d \cdot V \cdot g$

$S_A = 500\ m^3 \cdot 9{,}8\ \frac{m}{s^2} \cdot 1{,}29\ Kg/m^3 = 6321\ N$

$P = m \cdot g \qquad P = dVg \qquad P = 0{,}18\ Kg/m^3 \cdot 500\ m^3 \cdot 9{,}8\ \frac{m}{s^2}$

$= 882\ N$

$S =$