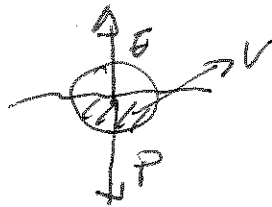


CONTRÔL DE FLUIDOS

1) / 1,5



$$d = 1000 \text{ kg/m}^3$$

$$m = 0,2 \text{ kg}$$

$$P = E$$

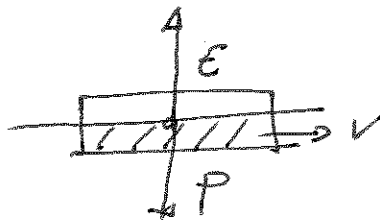
$$P = m \cdot g$$

$$E = V \cdot d \cdot g$$

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

$$V = \frac{m}{d} = \frac{0,2 \text{ kg}}{1000 \text{ kg/m}^3} = \boxed{2 \cdot 10^{-4} \text{ m}^3}$$

2) / 1,75



$$d = 1000 \text{ kg/m}^3$$

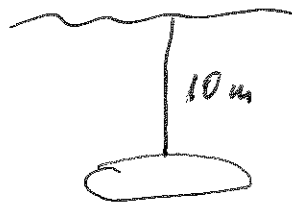
$$V = 0,15 \text{ m}^3$$

$$P = E$$

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

$$m = V \cdot d = 0,15 \text{ m}^3 \cdot 1000 \frac{\text{kg}}{\text{m}^3} = \boxed{150 \text{ kg}}$$

3) / 1,75



$$d = 1025 \text{ kg/m}^3$$

$$P = d \cdot g \cdot L$$

$$P = 1025 \cdot \frac{\text{kg}}{\text{m}^3} \cdot 9,8 \frac{\text{m}}{\text{s}^2} \cdot 10 \text{ m} =$$

$$P = 100.450 \text{ Pa}$$

4) / 1,75



$$m = 63 \text{ kg}$$

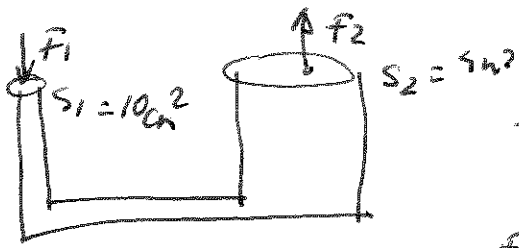
$$A = 2 \left(\frac{40}{10} \cdot \frac{40}{10} \right) = 2 \left(\frac{0,4 \cdot 0,4}{10} \right) \text{ m}^2 = 0,032 \text{ m}^2$$

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

$$F = P = m \cdot g = 63 \text{ kg} \cdot 9,8 \frac{\text{m}}{\text{s}^2} = 617,4 \text{ N}$$

$$P = \frac{617,4 \text{ N}}{0,032 \text{ m}^2} = 19.290 \text{ Pa}$$

5/ 1.73



$$S_1 = 10 \text{ cm}^2 = 0,001 \text{ m}^2$$

$$\frac{F_1}{S_1} = \frac{F_2}{S_2}$$

$$\frac{F_1}{0,001 \text{ m}^2} = \frac{1500 \cdot \frac{1}{2} \cdot 9,8 \frac{\text{N}}{\text{kg}}}{4 \text{ cm}^2}$$

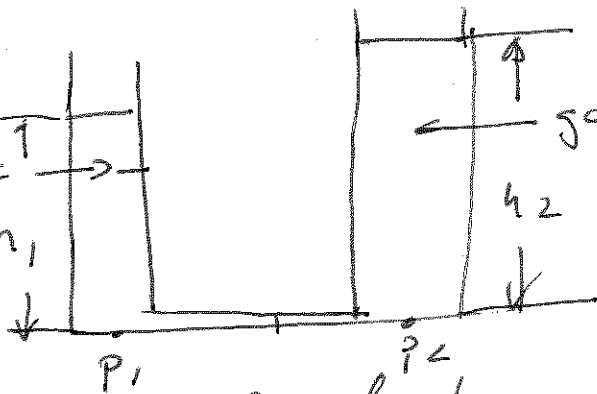
$$F_1 = \frac{0,001 \cdot 1500 \cdot 9,8}{4} \text{ N} = 3,675 \text{ N}$$

6/ 1

$$d_1 = 1000 \frac{\text{kg}}{\text{m}^3}$$

agua

$$0,2 \text{ m} = h_1$$



$$g \text{ agua } d_2 = 680 \frac{\text{kg}}{\text{m}^3}$$

$$P = d \cdot g \cdot h$$

$$P_1 = d_1 \cdot g \cdot h_1$$

$$P_2 = d_2 \cdot g \cdot h_2$$

$$P_1 = P_2$$

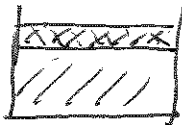
$$d_1 \cdot g \cdot h_1 = d_2 \cdot g \cdot h_2$$

$$1000 \frac{\text{kg}}{\text{m}^3} \cdot 0,2 \text{ m} = 680 \frac{\text{kg}}{\text{m}^3} \cdot h_2$$

$$h_2 = \frac{1000 \cdot 0,2}{680} \text{ m} = \boxed{0,29 \text{ m}}$$

7/ (0,5)

a) El menos denso se coloca encima del más denso



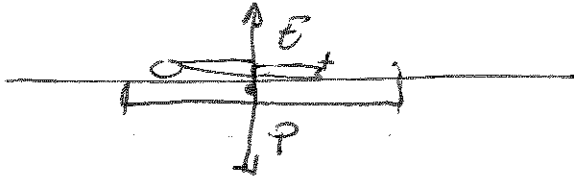
b) Flota mejor en el mar porque la densidad es mayor.

$$\text{El empuje es } E = V \cdot d \cdot g$$

Al ser la densidad mayor el volumen sumergido debe ser menor.

OPCIONAL

(a)



$$E = P$$

$$v.d.f = mg$$

$$v = \frac{m}{d} = \frac{65 \text{ kg}}{1000 \frac{\text{kg}}{\text{m}^3}} = \boxed{0,065 \text{ m}^3}$$