

ese #2

305

$$m = 7,5 \text{ Kg}$$

$$\theta = 30^\circ$$

$$v_i = 20 \frac{\text{m}}{\text{s}}$$

$$h_{\text{max}} = 20 \text{ m}$$

$$E_m(A) = U_A + K_A = 0 + \frac{1}{2} m v_i^2 = 1500 \text{ J}$$

$$E_m(f) = U_B + K_B = m g h_{\text{max}} + 0 = 1500 \text{ J}$$

$$L_{\text{Fonte}} = \Delta E_m = 0$$

ATTENZIONE

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$$L_{FA} = ?$$

$$m = 0,5 \text{ Kg}$$

$$v = 10 \frac{\text{m}}{\text{s}}$$

$$L - \Delta K = K_D - K_A$$

ENERGIA
E
LAVORO

$$L = \Delta K = K_B - K_A$$

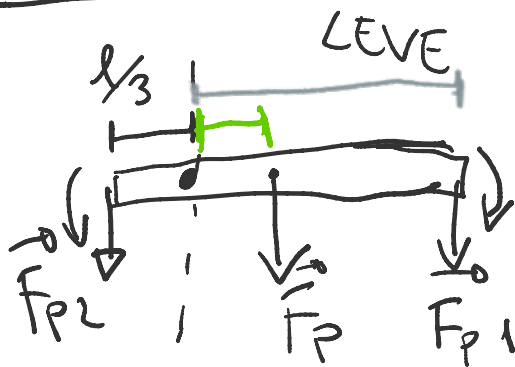
$$K_A = \frac{1}{2} m v_A^2 = 25 \text{ J}$$

$$K_B = \frac{1}{2} m v_B^2 = 0$$

$$L = 0 - 25 = -25 \text{ J}$$

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MOMENTI DELLE FORTE



$$l$$

$$m = 6 \text{ Kg}$$

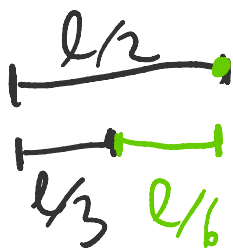
$$m_1 = 10 \text{ Kg}$$

$$F_{p2} = ?$$

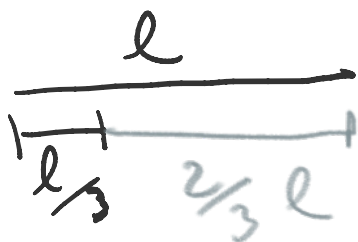
$$F_P =$$

$$F_{p1} =$$

$$\sum M = 0$$



$$\text{BRACCIO DI } F_{p2} = \frac{l}{2} - \frac{l}{3} = \frac{3l - 2l}{6} = \frac{l}{6}$$



$$\text{BRACCIO DI } F_{p1}$$

$$-F_{p1} b_{p1} - F_p \cdot b_p + F_{p2} \cdot b_{p2} = 0$$

- TP1 VP1 1 p VP 1 1 1

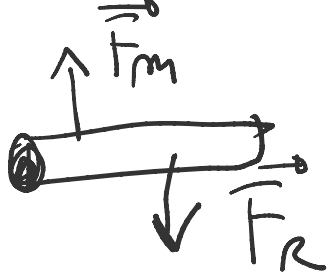
$$-m_1 g \cdot \frac{2}{3}l - m g \frac{l}{6} + x g \frac{l}{3} = 0$$

$$\underline{-m_1 g \cdot 4l - m g l + 2x l = 0}$$

$$-10 \cdot 4 - 6 + 2x = 0$$

$$-46 + 2x = 0 \quad x = 23 \text{ kg}$$

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$$b_n = 20 \text{ cm}$$

$$b_m = 5 \text{ cm}$$

$$\vec{F}_m \cdot b_m = \vec{F}_n \cdot b_n$$

$$F_m \cdot 5 = F_n \cdot 20$$

$$F_m = 4 F_n$$

FLUIDOSTATICA

399 TORCIDIONAVULICO

399 | TORCHIOIDRAULICO

$$\frac{d_1}{d_2} = 20$$

$$F_1 = 80 \cdot 10^3 \text{ N}$$

$$F_2 = ?$$



$$P_1 = P_2$$

$$\frac{F_1}{A_1} = \frac{F_2}{A_2}$$

$$\frac{F_1}{\pi r_1^2} = \frac{F_2}{\pi r_2^2}$$

$$d_1^2 \frac{F_1}{\pi \left(\frac{d_1}{2}\right)^2} = \frac{F_2}{\pi \left(\frac{d_2}{2}\right)^2} d_1^2$$

$$F_1 = F_2 \frac{d_1^2}{d_2^2} = F_2 \left(\frac{d_1}{d_2}\right)^2$$

$$80 \cdot 10^3 = F_c (20)^2$$

$$F_c = \frac{80 \cdot 10^3}{20 \cdot 20} = \frac{\cancel{80}^4 \cdot 10^3}{\cancel{20} \cdot \cancel{20}_5} =$$

$$= \frac{10^2 \cdot 10}{5} = 200 \text{ N}$$

$$\boxed{426} \quad \frac{\rho_c}{\rho_A} = ?$$

$$V_I = \frac{1}{2} V_{TOT}$$

$$F_A = \rho_F V_I g$$

$$F_P = \rho_c V_{TOT} g$$

$$\rho_F V_I g = \rho_c V_{TOT} g$$

$$\rho_F \frac{1}{2} V_{TOT} = \rho_c V_{TOT}$$

$$P_k \frac{1}{2} V_{TOT} - \rho_c V_{TOT}$$

$$\frac{1}{2} = \frac{\rho_c}{P_k} \quad \frac{\rho_c}{P_k} = 0,5$$

$$\boxed{430} \quad F_A = 70 - 40 = 30 \text{ N}$$

$$\begin{cases} P_k V_{TOT} g = 30 \text{ N} & (2) \\ \rho_c V_{TOT} g = 70 \text{ N} & (1) \end{cases}$$

$$\frac{\rho_c}{P_k} \quad \frac{(1)}{(2)} \Rightarrow \frac{\rho_c V_{TOT}}{P_k V_{TOT}} = \frac{70}{30}$$

$$\begin{cases} P_k V_{TOT} g = 30 \\ \rho_c V_{TOT} g = 70 \end{cases}$$

$$\begin{cases} P_k V_{TOT} = 3 \Rightarrow V_{TOT} = \frac{3}{P_k} \\ \rho_c V_{TOT} = 7 \Rightarrow \rho_c \frac{3}{P_k} = 7 \end{cases}$$

P_f

$$\frac{P_c}{P_f} = \frac{7}{3}$$

500

FLUIDODINAMICA

A $v = \text{costante}$

$$v_1 = 28 \frac{\text{cm}}{\text{s}}$$

$$v_2 = 0,4 \frac{\text{mm}}{\text{s}}$$

$$r_1 = 1 \text{ cm}$$

$$r_2 = 5 \mu\text{m}$$

no capilar = ?

$$A_1 v_1 = A_2 v_2$$

$$\cancel{\pi} r_1^2 v_1 = \cancel{\pi} r_2^2 v_2 \cdot n^\circ$$

$$(10^{-2})^2 \cdot 28 \cdot 10^{-2} = (5 \cdot 10^{-6})^2 \cdot 0,4 \cdot 10^{-3} \cdot n^\circ$$

$$10^{-6} \cdot 28 = 25 \cdot 0,4 \cdot 10^{-15} \cdot n^\circ$$

$$28 \cdot 10^{-6} = 25 \cdot 4 \cdot 10^{-1} \cdot 10^{-15} n^\circ$$

$$28 \cdot 10^{-6} = 100 \cdot 10^{-1} \cdot 10^{-15} n^\circ$$

$$28 \cdot 10^{-6} = 100 \cdot 10^{-1} \cdot 10^{-5} \text{ m}^0$$

$$\frac{28 \cdot 10^{-6}}{100 \cdot 10^{-1} \cdot 10^{-5}} = \text{m}^0$$

$$\text{m}^0 = \frac{28 \cdot 10^{-6}}{10^{-14}} = 28 \cdot 10^8$$