

# ΦΕΥΑ Α

A1. γ

A5. α. ε

A2. δ

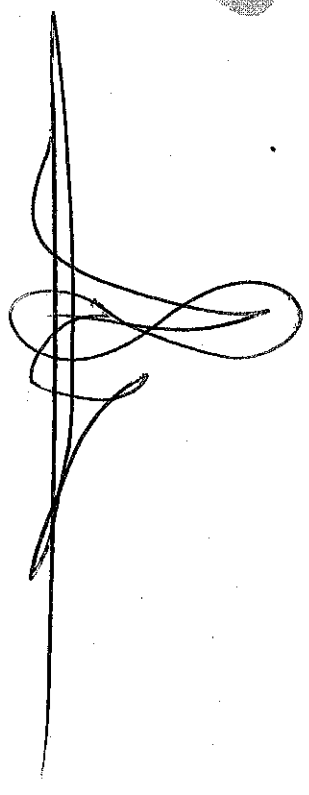
β. ν

A3. γ

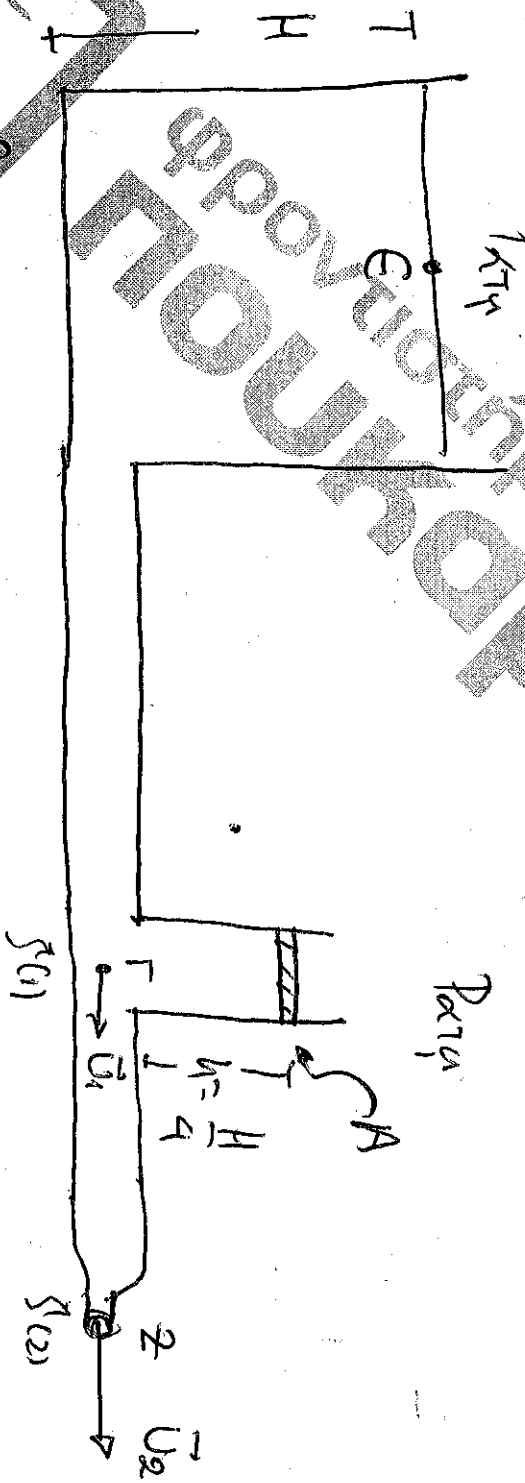
γ. ε

A4. β

δ. ε



Β2) Σωστό το 1



**Βεβαιωθείτε**

$E + Z :$

$$P_{atm} + \frac{1}{2} \rho v^2 + \rho g H = P_{atm} + \frac{1}{2} \rho v_2^2 \Rightarrow v_2 = \sqrt{2gH} \quad (1)$$

Αρκεί της συνέχησης

$$\Pi_1 = \Pi_2 \Rightarrow A_1 \cdot v_1 = A_2 v_2 \Rightarrow v_1 = \frac{A_2}{A_1} v_2 = \frac{\sqrt{2g \cdot H}}{2} \quad (2)$$

Βεβαιωθείτε :  $\Gamma \rightarrow Z$

$$P_r + \frac{1}{2} \rho v_1^2 = P_{atm} + \frac{1}{2} \rho v_2^2 \Rightarrow P_r = P_{atm} + \frac{1}{2} \rho (v_2^2 - v_1^2)$$

$$\Rightarrow P_r = P_{atm} + \frac{1}{2} \rho (2gH - \frac{2gH}{4}) \Rightarrow P_r = P_{atm} + \frac{1}{2} \rho \cdot \frac{3}{2} gH$$

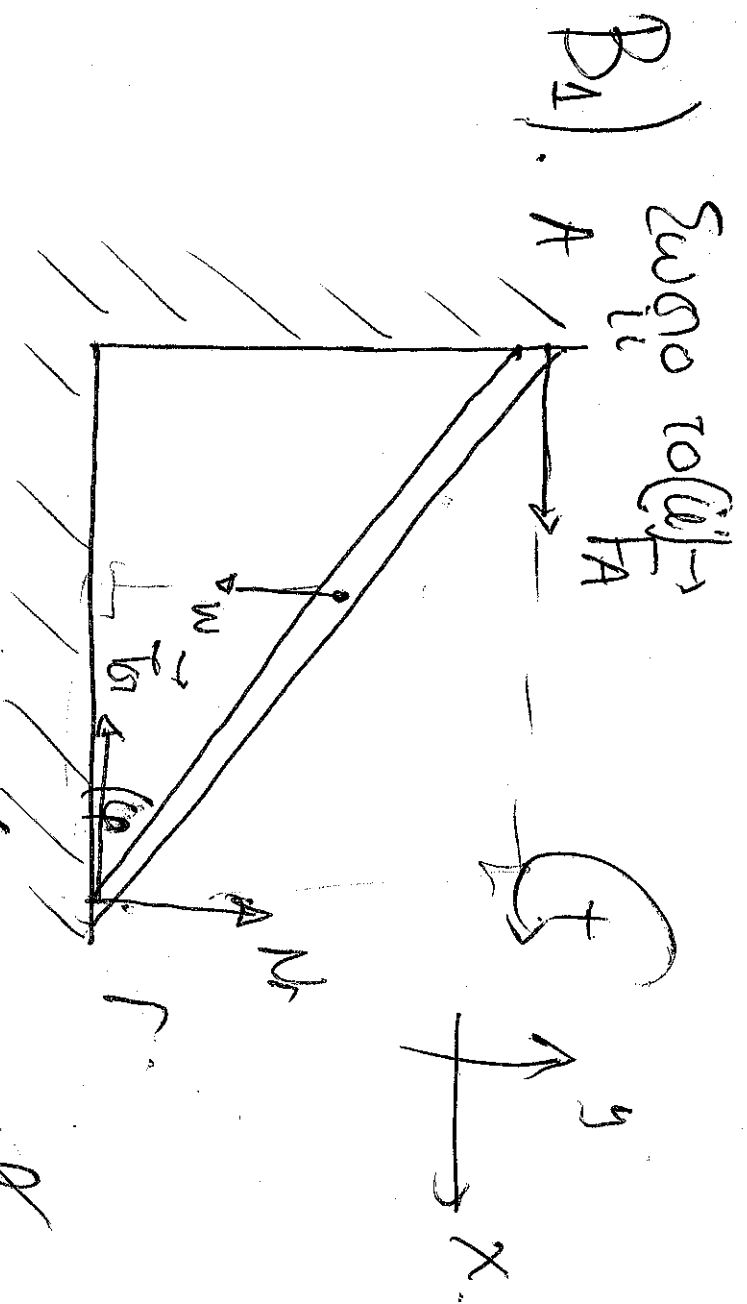
$$\Rightarrow P_r = P_{atm} + \frac{3}{4} \rho gH \quad (3)$$

Όπως στο σχήμα

$$P_r = P_{atm} + \frac{w}{A} + \rho g \frac{H}{4} \Rightarrow P_{atm} + \frac{3}{4} \rho gH = P_{atm} + \frac{w}{A} + \rho g \frac{H}{4}$$

$$\Rightarrow \frac{W}{A} = \frac{2}{4} \rho g H \Rightarrow \frac{W}{A} = \frac{\rho g H}{2} \Rightarrow N = \frac{\rho g H A}{2}$$

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$$\sum \vec{r} \times \vec{F} = 0 \Rightarrow F_A \cdot \frac{1}{2} \rho g H - W \cdot \frac{1}{2} \rho g H = 0 \Rightarrow$$

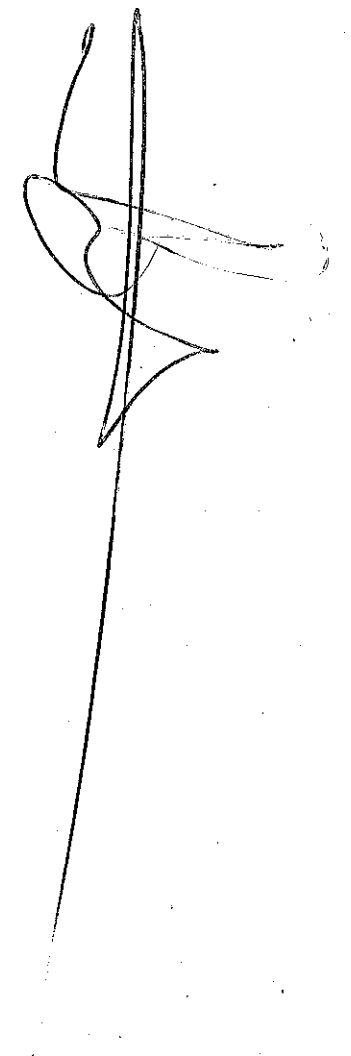
$$\rho g H = \frac{W}{2 F_A} \quad (1)$$

$$\sum F_x = 0 \Rightarrow F_A = T \quad \text{oparaq iraku va ofe shich}$$

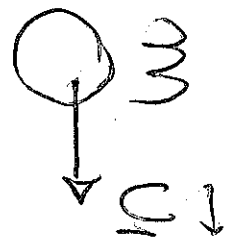
$$F_A = \frac{1}{2} N \quad (2)$$

$$\sum F_y = 0 \Rightarrow N = N \quad (3)$$

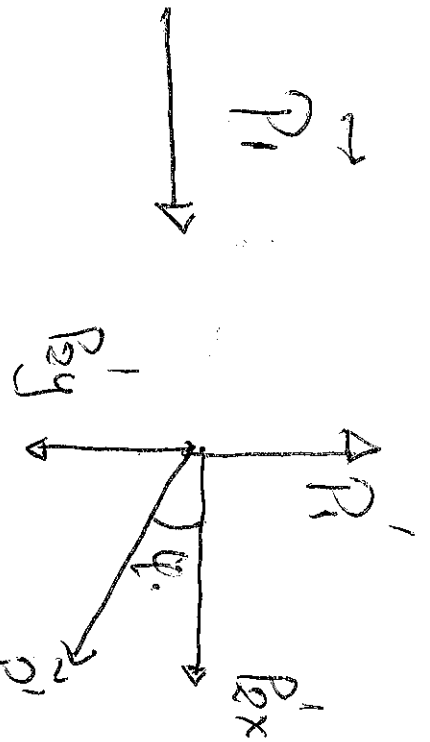
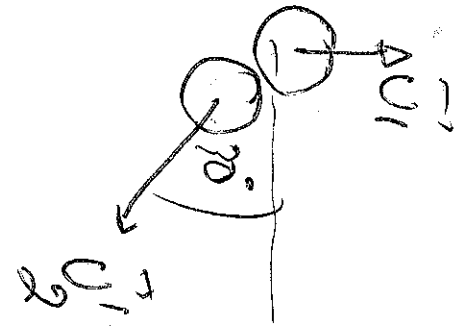
$$(1) \Rightarrow \rho g H = \frac{1}{2} \frac{1}{2} \rho g H$$



B3)



Σωσες 20 (11)



Δ.Κ.Ε:  $K_{μπυ}^{ορ} = W_{κετα} \Rightarrow \frac{1}{2} m u_1^2 = \frac{1}{2} m u_1'^2 + \frac{1}{2} m u_2'^2$

$\Rightarrow u_1 = u_1'^2 + 2u_2'^2$

ΑΔΟ xx' :  $P_x (μπυ) = P_x (κετα) \Rightarrow P_1 = P_2 \Rightarrow P_1 = P_2 \Rightarrow P_1 = P_2 \Rightarrow P_1 = P_2$

$\Rightarrow m u_1 = 2m u_2' \cdot \cos 30^\circ \Rightarrow u_1 = \sqrt{3} u_2'$

$\Rightarrow u_1 = \sqrt{3} u_2'$  (2)

ΑΔΟ yy' :  $P_y (μπυ) = P_y (κετα) \Rightarrow P_1 = P_2 \Rightarrow m u_1' = 2m u_2' \cdot \sin 30^\circ$

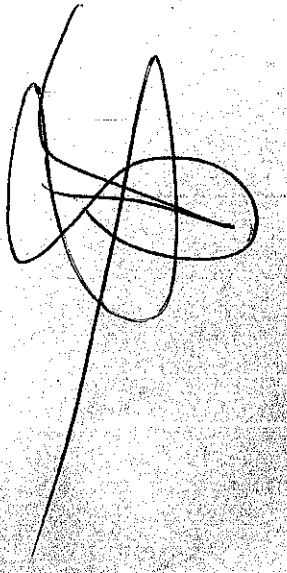
$\Rightarrow u_1' = u_2'$  (3)

ΑΡΧ (1) (2) (3)  $u_1^2 = u_1'^2 + 2u_2'^2 \Rightarrow u_1 = \sqrt{3} u_1'$  (4)

ΑΔΟ κεντρικη Σ1 & Σ2 :  $P_{μπυ} = P_{κετα} \Rightarrow m u_1 = 2m u_2' \Rightarrow u_1 = 2u_2'$  (5)

$\Rightarrow m u_1 = 2m u_2' \Rightarrow u_1 = 2u_2' \Rightarrow u_1 = \frac{u_2'}{2}$  (5)

ΑΡΧ  $\frac{W_{κετα}}{W_1} = \frac{\frac{1}{2} m u_1^2}{\frac{1}{2} m u_1'^2} = \frac{2 \frac{u_1^2}{2}}{u_1'^2} = \frac{1}{6}$



# ΘΕΜΑ Γ

Γ1)  $\bar{P}_1 = \frac{V_{ev}^2}{R_1} \Rightarrow V_{ev} = \sqrt{\bar{P}_1 \cdot R_1} = \sqrt{12 \cdot 6} = \boxed{6\sqrt{2} \text{ V}}$

•  $V_{ev} = \frac{V}{\sqrt{2}} \Rightarrow V = V_{ev} \sqrt{2} \Rightarrow V = 6\sqrt{2} \sqrt{2} = \boxed{12 \text{ V}}$

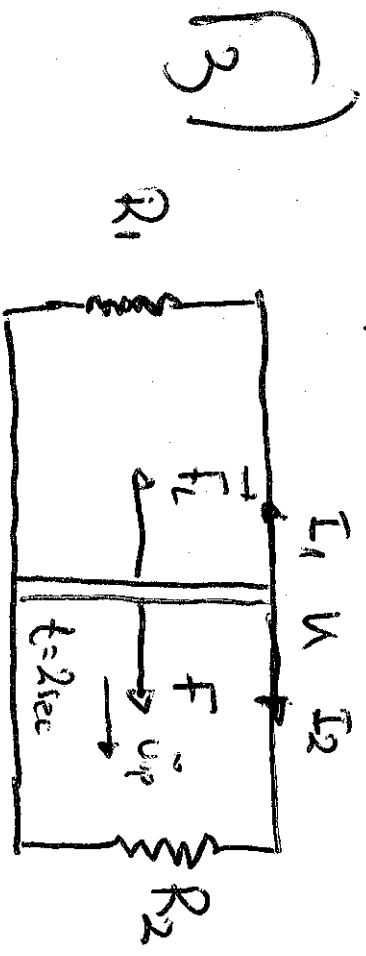
•  $I_{ev} = \frac{V_{ev}}{\sqrt{2}} \Rightarrow I_{ev} = \frac{6\sqrt{2}}{\sqrt{2}} \Rightarrow \boxed{I_{ev} = 6 \text{ A}}$

Γ2)  $V' = N \cdot \dot{\omega} \cdot B \cdot A \Rightarrow \omega = \frac{2\pi \cdot \nu}{1} \Rightarrow V' = 2\sqrt{2} \cdot \omega \cdot B \cdot A \Rightarrow \boxed{V' = 2 \text{ V}}$

•  $P_1 = \frac{V_1^2}{R_1} \Rightarrow P_1 = \frac{V'^2}{R} \cdot m^2 (\omega t) = 96 \text{ mJ}^2 (100\pi t) (5\pi)$

Γ3)  $f = 5 \cdot 10^{-3} \text{ s}$   
 $P_1 = 96 \text{ mJ}^2 (10^2 \pi \cdot 5 \cdot 10^{-3}) = 96 \text{ mJ}^2 \frac{\pi}{2}$

$P_1 = 96 \text{ W}$



•  $R_{1,2} = \frac{R_1 R_2}{R_1 + R_2} = \frac{6 \cdot 3}{9} = 2 \Omega$

•  $R_{0,2} = R_{1,2} + R_{un} = 4 \Omega$

•  $0 \rightarrow 2 \text{ sec} \quad \alpha = \frac{\Delta F}{m} \Rightarrow \alpha = \frac{F}{m} \Rightarrow \alpha = \frac{0,5}{0,5} \Rightarrow \alpha = 1 \text{ m/s}^2$

•  $\alpha p \alpha \quad v = \alpha \cdot \Delta t = 1 (2 - 0) = 2 \text{ m/s}$

*[Handwritten signature]*

Συν ευρέτητα

$$SF = 0 \Rightarrow F = F_L \Rightarrow F = \frac{B^2 R^2 U_p}{R_{02}}$$

$$\Rightarrow B = \sqrt{\frac{F \cdot R_{02}}{R^2 U_p}} \Rightarrow \boxed{B = \sqrt{I}}$$

F<sub>4</sub>) 0 → 2 sec

$$I = 0 \text{ u } Q = 0$$

$$\eta\% = \frac{Q_2}{W_F} = \frac{100\% \cdot 0}{2} = \frac{I_2 R_2 \cdot \Delta t}{F \cdot \Delta X} \quad (1)$$

Όπως  $I = \frac{B U_D}{R_{02}} = 0,5 \text{ A}$

u  $U = \sqrt{2} u \quad I_1 \cdot R_1 = I_2 R_2 \Rightarrow 6 I_1 = 3 I_2$

$\Rightarrow I_2 = 2 I_1$

uα  $I = I_1 + I_2 \Rightarrow$

$$I = \frac{3 I_2}{2} \Rightarrow I_2 = \frac{1}{3} I$$

$$\Rightarrow I_2 = \frac{1}{3} \text{ A} \quad (2)$$

Enigms  $\Delta X_2 = U \cdot \Delta t_2 \Rightarrow \Delta X_2 = 6 \text{ m} \quad (2)$

uα  $\Delta X_1 = \frac{1}{2} a \cdot \Delta t_1^2 = 2 \text{ m} \quad (3)$

Συνεπώς (1), (2)  $\Delta X = \Delta X_1 + \Delta X_2 = 8 \text{ m} \quad (4)$

(1) <sup>(2)</sup>  $\eta\% = 25\%$   
(4)