

Απαντήσεις

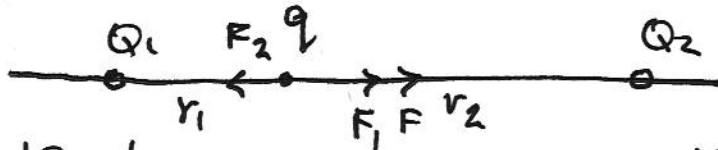
Θέμα Α 1-α, 2-γ, 3-γ, 4γ, 5-γ.

Θέμα Β Β₁-(β). Διοτι $\Delta P = m v_0 - (-2m v_0) = +3m v_0$

Β₂-Α-α Διοτι $v_{\max} = \omega A$

Β₂-Β-β Διοτι $E_{\text{καλ}} = \frac{1}{2} D A^2$

Θέμα Γ



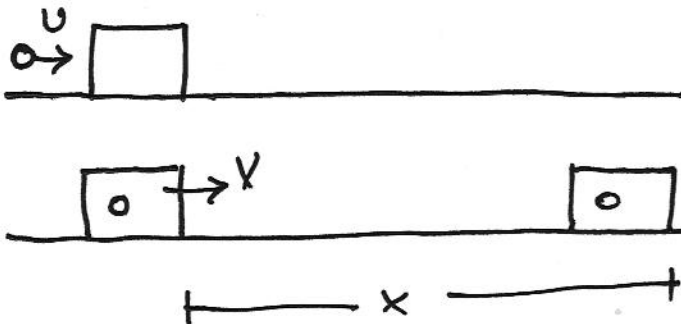
$$\alpha) F_1 = k_c \frac{|Q_1 \cdot q|}{r_1^2} = \dots = 0,4 \text{ N} \quad F_2 = k_c \frac{|Q_2 \cdot q|}{r_2^2} = \dots = 0,05 \text{ N}$$

$$\beta) \Sigma F = F_1 - F_2 = 0,35 \text{ N}$$

$$\gamma) V_r = k_c \frac{Q_1}{r_1} + k_c \frac{Q_2}{r_2} = \dots = 1,5 \cdot 10^5 \text{ V}$$

$$\delta) W_{r \rightarrow \infty} = q (V_r - V_{\infty}) = \dots = 0,15 \text{ J}$$

Θέμα Δ



$$\alpha) P_{\text{ηπιυ}} = P_{\text{μηκ}} \Rightarrow m u = (m+M) V \Rightarrow V = 5 \frac{\text{m}}{\text{s}}$$

$$\beta) \text{ΘΜΚΕ} : 0 - \frac{1}{2} (m+M) V^2 = -T x \Rightarrow \dots \Rightarrow T = 2,5 \text{ N}$$

$$\gamma) x = V \cdot t - \frac{1}{2} \frac{T}{m+M} t^2 \Rightarrow \dots \Rightarrow t = 4 \text{ s}$$

$$\delta) \text{ΑΔΕ} : K_{\text{ηπιυ}} = K_{\text{μηκ}} + Q \Rightarrow Q = \frac{1}{2} m u^2 - \frac{1}{2} (m+M) V^2 \Rightarrow$$
$$Q = 475 \text{ J.}$$