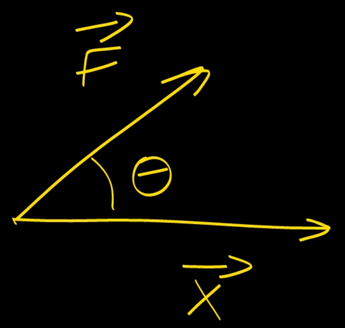
Έργο δύναμης.

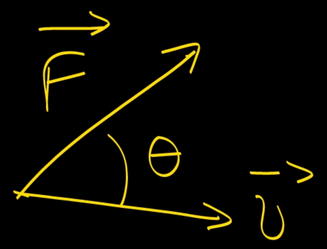
$$W_F = F \cdot x \cdot \sigma\upsilon\nu\theta .$$



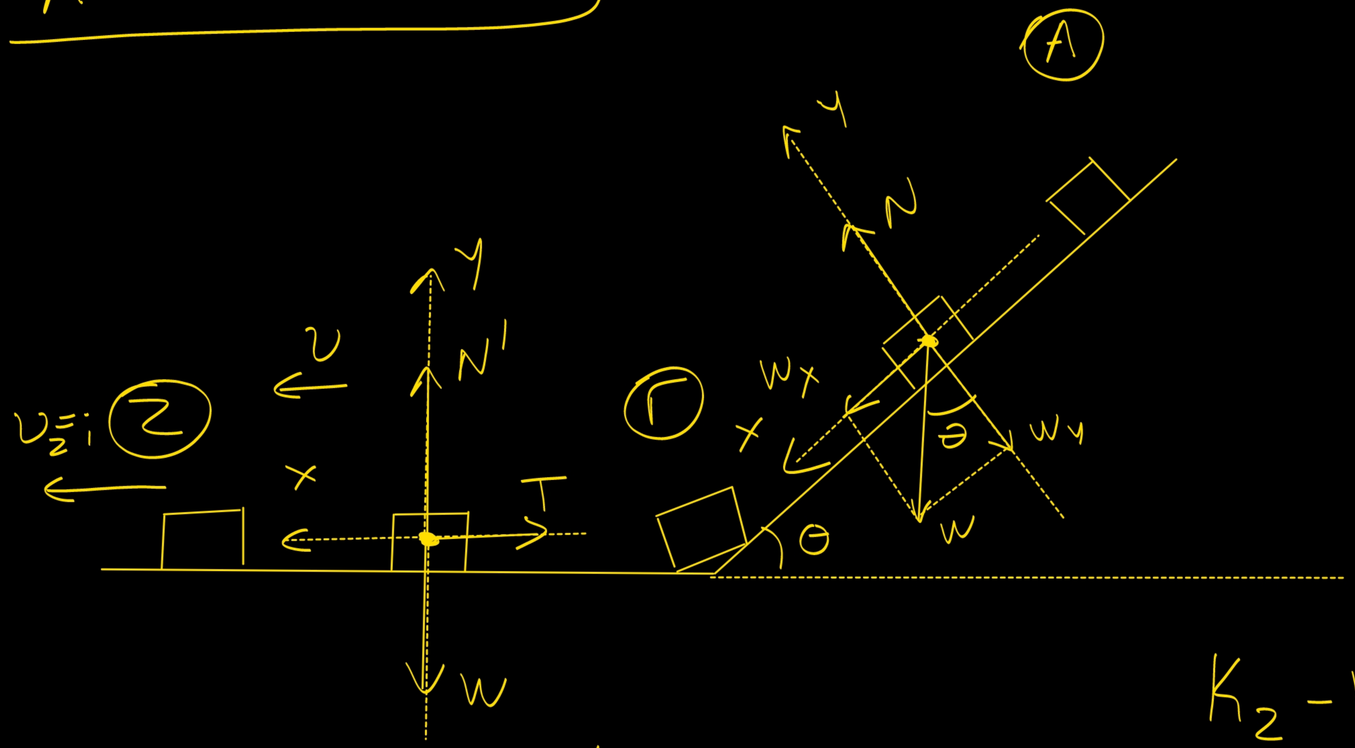
Ισχύς δύναμης.

$$P_F = \frac{W_F}{t} = \frac{F \cdot x \cdot \sigma\upsilon\nu\theta}{t} = F \cdot \frac{x}{t} \cdot \sigma\upsilon\nu\theta \Rightarrow$$

$$P_F = F \cdot \upsilon \cdot \sigma\upsilon\nu\theta$$



Ασκ. 6 σελ. 193.



$\Sigma F_y = 0 \Rightarrow N' = W$

$T = \mu N' = \mu W = \mu \cdot m \cdot g$.

ΘΜΚΕ: Α → Γ :

$\Delta K = \Sigma W \Rightarrow K_\Gamma - K_A = W_{w_x} + \cancel{W_{w_y}}^{\,0} + \cancel{W_N}^{\,0} \Rightarrow$

$(\vec{w}_y, \vec{N} \perp \Delta\vec{x})$

$K_\Gamma - 0 = W_x \cdot A\Gamma \Rightarrow$

$K_\Gamma = m \cdot g \cdot \eta\mu\theta \cdot A\Gamma$.

ΘΜΚΕ: Γ → Ζ : $\Delta K = \Sigma W \Rightarrow$

$K_Z - K_\Gamma = \cancel{W_{N'}}^{\,0} + \cancel{W_w}^{\,0} + W_T \Rightarrow$ $(\vec{N}', \vec{w} \perp \Delta\vec{x})$

$K_Z - m \cdot g \cdot \eta\mu\theta \cdot A\Gamma = W_T \Rightarrow$

$K_Z - m \cdot g \cdot A\Gamma \cdot \eta\mu\theta = -T \cdot \Gamma Z$

$$K_2 - m \cdot g \cdot \Delta\Gamma \cdot \eta\mu\theta = -\gamma \cdot m \cdot g \cdot \Gamma Z \Rightarrow$$

$$\frac{1}{2} \cdot \cancel{m} \cdot U_2^2 - \cancel{m} \cdot g \cdot \Delta\Gamma \cdot \eta\mu\theta = -\gamma \cdot \cancel{m} \cdot g \cdot \Gamma Z \Rightarrow$$

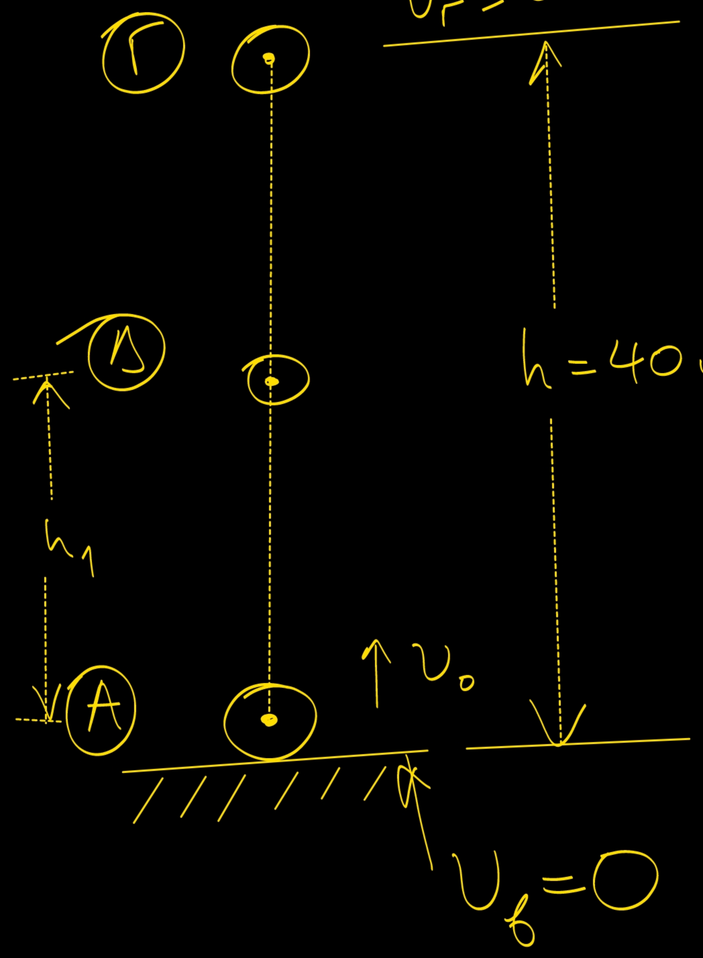
$$\frac{U_2^2}{2} - g \cdot \Delta\Gamma \cdot \eta\mu\theta = -\gamma \cdot g \cdot \Gamma Z \Rightarrow$$

$$\frac{U_2^2}{2} - 10 \cdot 6 \cdot \eta\mu 30^\circ = -0{,}2 \cdot 10 \cdot 6 \Rightarrow$$

$$\frac{U_2^2}{2} - 30 = -12 \Rightarrow \frac{U_2^2}{2} = 30 - 12 \Rightarrow$$

$$\frac{U_2^2}{2} = 18 \Rightarrow U_2^2 = 36 \Rightarrow \boxed{U_2 = 6\ m/s}$$

Ασκ. 13 σελ. 194.)



α) $K_\Delta = \frac{K_A}{2}$ $\quad h_1 = ;$

ΑΔΜΕ: Α → Γ: $K_A + \cancel{U_A}^{\,0} = \cancel{K_r}^{\,0} + U_r \Rightarrow$

$$K_A = m \cdot g \cdot h$$

ΑΔΜΕ: Α → Δ: $K_A + \cancel{U_A}^{\,0} = K_\Delta + U_\Delta \Longrightarrow$

$$K_A = \frac{K_A}{2} + m \cdot g \cdot h_1 \Rightarrow \frac{K_A}{2} = m \cdot g \cdot h_1 \Rightarrow$$

$$\frac{\cancel{m} g h}{2} = \cancel{m} g h_1 \Rightarrow$$

$$h_1 = \frac{h}{2} \Rightarrow \boxed{h_1 = 20\,m}$$