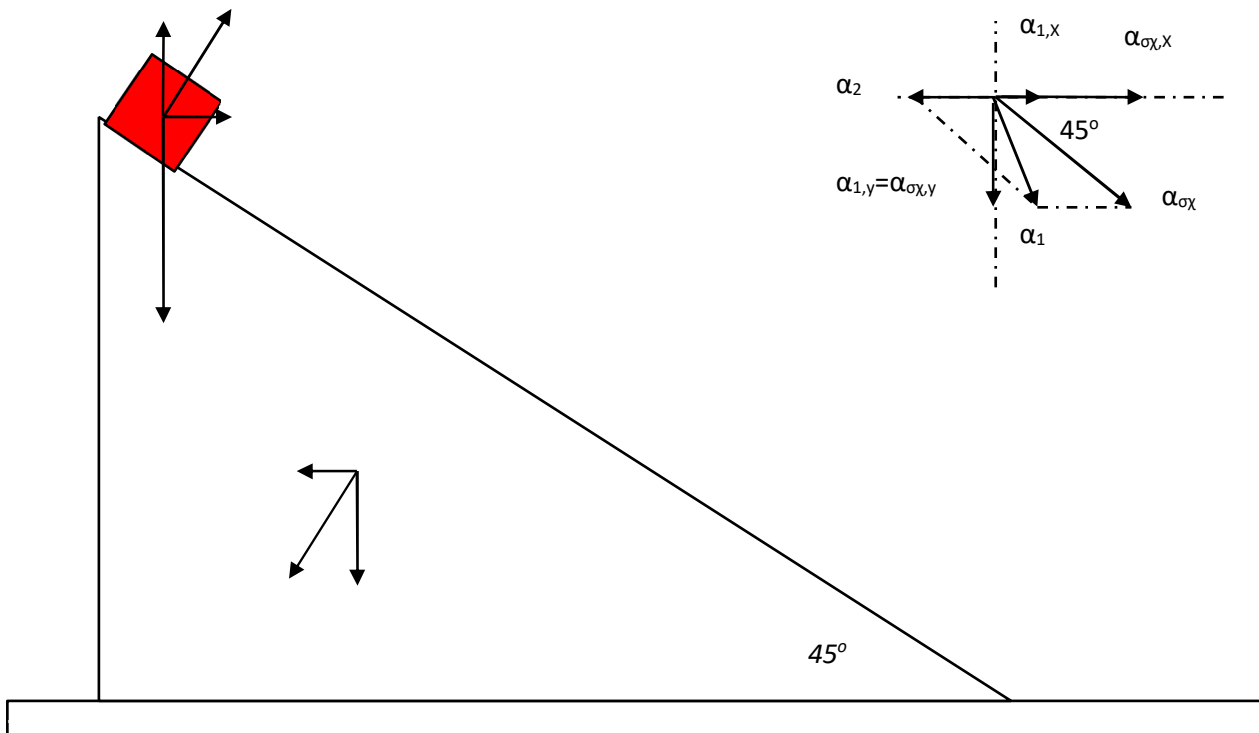


ΛΥΣΗ ΑΣΚΗΣΗΣ



ΣΦΗΝΑ: $N_x = 3m a_2$ (1) $N_x = N_y = N \frac{\sqrt{2}}{2}$ (4)

ΣΩΜΑ: Άξονας (x) $N_x = m a_{1x}$ (2) Άξονας (y) $mg - N_y = m a_{1y}$ (3)

ΣΧΗΜΑ ΕΠΙΤΑΧΥΝΣΕΩΝ: $\vec{a}_1 - \vec{a}_2 = \vec{a}_{\sigma x} \Rightarrow \vec{a}_1 = \vec{a}_2 + \vec{a}_{\sigma x}$

ΕΠΙΣΗΣ $\alpha_{1,x} = \alpha_{\sigma x} \cos 45^\circ \Rightarrow \alpha_{\sigma x} \sin 45^\circ = \alpha_{1,x} + \alpha_2$ (5) και

$\alpha_{1,y} = \alpha_{\sigma x} \sin 45^\circ = \alpha_{\sigma x} \eta \mu 45^\circ$ (6)

$\frac{(6)}{(5)} \tan 45^\circ = \frac{\alpha_{1,y}}{\alpha_{1,x} + a_2} \Rightarrow a_{1,y} = \alpha_{1,x} + a_2$ από (1), (2), (3) και (4) $\frac{mg - N \frac{\sqrt{2}}{2}}{m} = \frac{N \frac{\sqrt{2}}{2}}{m} + \frac{N \frac{\sqrt{2}}{2}}{3m} \Rightarrow N = \frac{3\sqrt{2}}{7} mg$ (7)

Αντικαθιστώ την (7) στην (4): $N_x = N_y = \frac{3\sqrt{2}}{7} mg \frac{\sqrt{2}}{2} = \frac{3}{7} mg \Rightarrow N_x = N_y = \frac{3}{7} mg$ (8)

Αντικαθιστώ την (8) στην (1): $\frac{3}{7} mg = 3m a_2 \Rightarrow a_2 = \frac{g}{7}$

Αντικαθιστώ την (8) στην (2): $\frac{3}{7} mg = m a_{1,x} \Rightarrow \alpha_{1,x} = \frac{3g}{7}$

Αντικαθιστώ την (8) στην (3): $mg - \frac{3}{7} mg = m a_{1,y} \Rightarrow \alpha_{1,y} = \frac{4g}{7}$

Από π.θ. $\alpha_1 = \frac{5g}{7}$ $\epsilon \phi \phi = \frac{\alpha_{1,y}}{\alpha_{1,x}} = 4/3 \Rightarrow \phi \cong 53^\circ$

$H = \frac{1}{2} \cdot \alpha_{1,y} \cdot t^2 \Rightarrow 1,4 = 0,5 \frac{40}{7} t^2 \Rightarrow \frac{14^2}{20^2} = t^2 \Rightarrow t = 0,7 \text{ sec}$

ΑΛΛΟΣ ΤΡΟΠΟΣ : $\alpha_{\sigma x} = \alpha_{1,y} \sqrt{2} = \frac{4\sqrt{2}}{7} g$, $S_{\sigma x} = 1,4\sqrt{2} \Rightarrow \frac{1}{2} \alpha_{\sigma x} t^2 = 1,4\sqrt{2} \Rightarrow \frac{1}{2} \frac{40\sqrt{2}}{7} t^2 = 1,4\sqrt{2} \Rightarrow$

$t^2 = 196/400 \Rightarrow t = 14/20 \text{ sec} \Rightarrow t = 0,7 \text{ sec}$