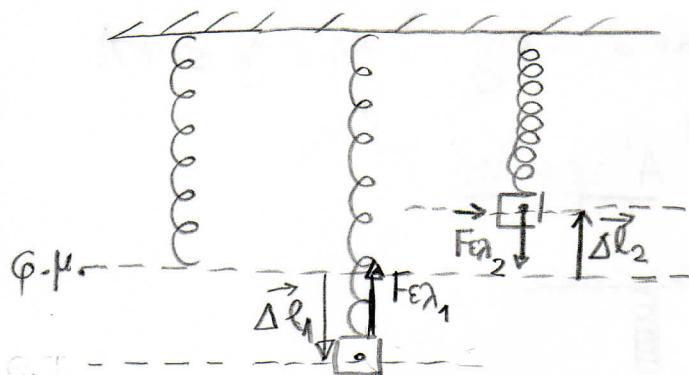


Διναρμ Εγκρηγίου



$$\vec{F}_{\text{ΕΓ}} = -k \cdot \vec{\Delta l}_2$$

Η θετική φορά δεν εχει σημασία.

Π.χ. με $k = 10 \text{ N/m}$, $|\Delta l| = 0,2 \text{ m}$

a) + $\vec{F}_{\text{ΕΓ},1} = -k \cdot \vec{\Delta l}_1$

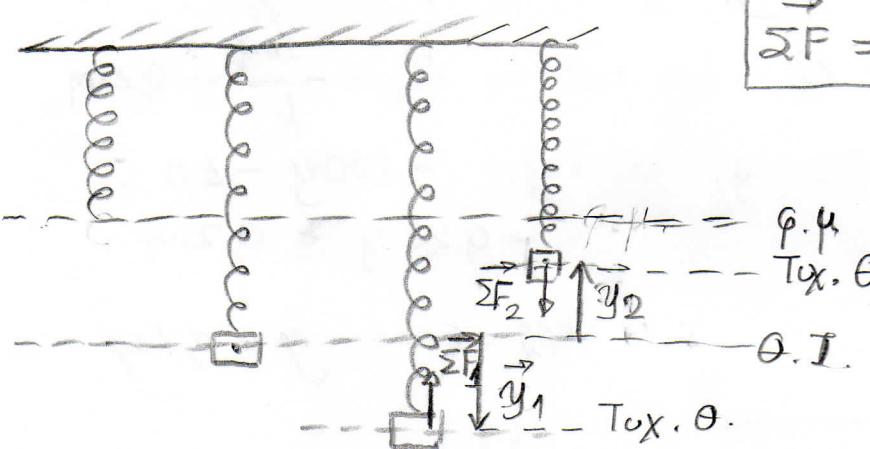
$$F_{\text{ΕΓ},1} = -10 \cdot (-0,2) = +2 \text{ N } (\uparrow)$$

$$\vec{F}_{\text{ΕΓ},2} = -k \cdot \vec{\Delta l}_2 \Rightarrow F_{\text{ΕΓ},2} = -10 \cdot (+0,2) = -2 \text{ N } (\downarrow)$$

b) ↓ + $\vec{F}_{\text{ΕΓ},1} = -k \cdot \vec{\Delta l}_1 \Rightarrow F_{\text{ΕΓ},1} = -10 \cdot (+0,2) = -2 \text{ N } (\uparrow)$

$$\vec{F}_{\text{ΕΓ},2} = -k \cdot \vec{\Delta l}_2 \Rightarrow F_{\text{ΕΓ},2} = -10 \cdot (-0,2) = +2 \text{ N } (\downarrow)$$

Διναρμ οπαφοράς



$$\vec{\Sigma F} = -k \cdot \vec{y}$$

Η θετική φορά δεν εχει σημασία

Π.χ. με $k = 10 \text{ N/m}$

$|y| = 0,1 \text{ m}$

a) + ↑ $\vec{\Sigma F}_1 = -k \cdot \vec{y}_1 \Rightarrow$

$$\Sigma F_1 = -10 \cdot (-0,1)$$

$$\Rightarrow \Sigma F_1 = +1 \text{ N } (\uparrow)$$

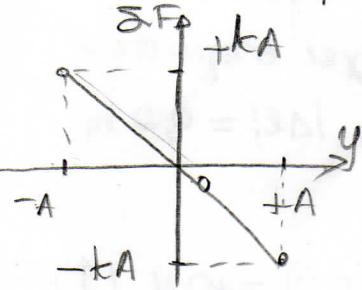
$$\Sigma F_2 = -k \cdot \vec{y}_2 \Rightarrow \Sigma F_2 = -10 \cdot (+0,1) = -1 \text{ N } (\downarrow)$$

b) + ↓ $\vec{\Sigma F}_1 = -k \cdot \vec{y}_1 \Rightarrow \Sigma F_1 = -10 \cdot (+0,1) = -1 \text{ N } (\uparrow)$

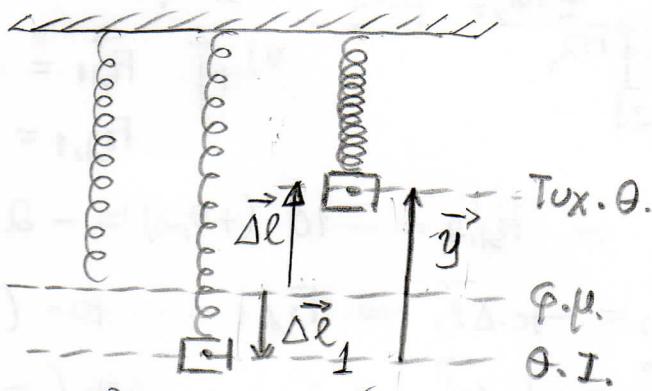
$$\vec{\Sigma F}_2 = -k \cdot \vec{y}_2 \Rightarrow \Sigma F_2 = -10 \cdot (+0,1) = +1 \text{ N } (\downarrow)$$

Графикиς параболи

a) $\frac{\vec{\Delta F} \rightarrow y}{\sum \vec{F} = -k \cdot \vec{y}} \Rightarrow \Delta F = -ky \quad -A \leq y \leq +A$



b) $\frac{F_g \rightarrow y}{A' \text{ зоидор}}$



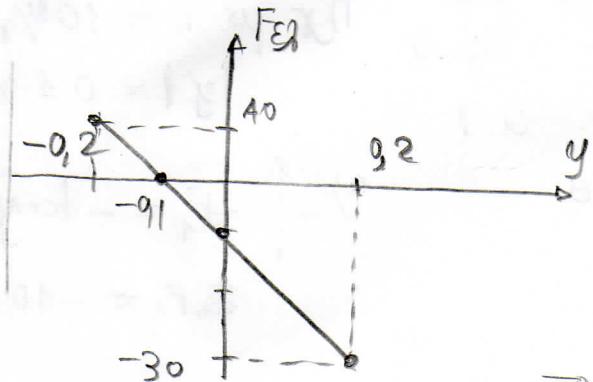
$$\vec{\Delta l} = \vec{\Delta l}_1 + \vec{y} \quad ! \text{Ара} \quad \vec{F_g} = -k(\vec{\Delta l}_1 + \vec{y}) \Rightarrow$$

$$F_g = -k(\Delta l_1 + y) \quad \text{д.х. } k = 100 \text{ N/m}, \quad m = 1 \text{ kg}, \quad A = 0,2 \text{ m}$$

O.I.: $\vec{\Delta F} = 0 \Rightarrow -k \cdot \Delta l_1 + mg = 0 \Rightarrow \Delta l_1 = \frac{mg}{k} = 0,1 \text{ m}$

$$F_g = -100 \cdot (0,1 + y) \Rightarrow F_g = -100y - 10$$

$$-0,2 \leq y \leq 0,2 \text{ m}$$



$$F_g = 0 \Rightarrow y = -0,1 \text{ m}$$

B' зоидор

$$\vec{\Delta F} = -k \cdot \vec{y} \Rightarrow \vec{F_g} + \vec{W} = -k \cdot \vec{y}$$

$$\Rightarrow F_g + mg = -k \cdot y$$

$$\Rightarrow F_g = -k \cdot y - mg$$

$$\Rightarrow F_g = -100y - 10, \quad -0,2 \leq y \leq 0,2 \text{ m}$$