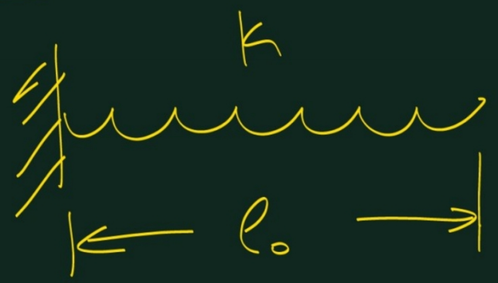
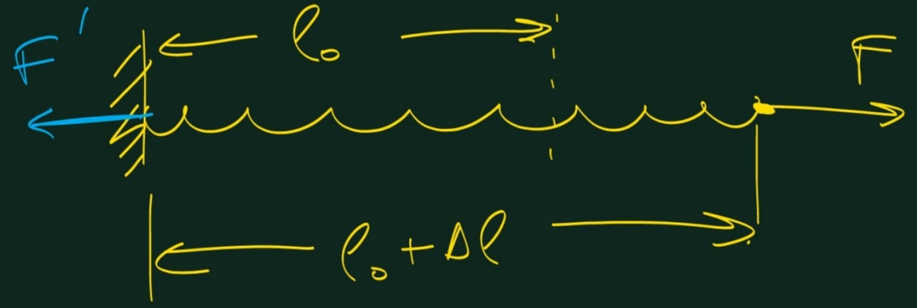
Νόμος ελαστικής παραμόρφωσης (Hooke)



l_0 = φυσικό μήκος ελατηρίου.



Νόμος Hooke

$$F = K \cdot \Delta l$$

Αν $\Delta l = x$ τότε: $F = K \cdot x$

K = σταθερά ελατηρίου (N/m)

Ασκ. 3 σελ. 107

α) Ομόρροπες και $F_1 = 4F_2$

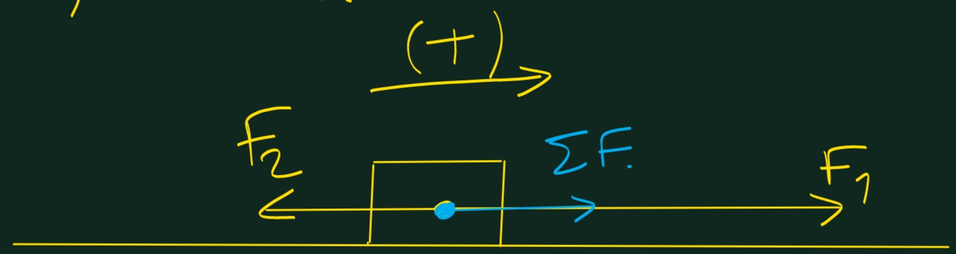
$\Sigma F = f_1 + f_2 \Rightarrow F = f_1 + f_2 \Rightarrow$

$F = 4f_2 + f_2 \Rightarrow \frac{10}{5} = \frac{5F_2}{5} \Rightarrow$

$F_2 = 2N$

και $F_1 = 4f_2 = 8N.$

β) Αντίρροπες και $F_1 = 3F_2$



$\Sigma f = f_1 - f_2 \Rightarrow$

$F = f_1 - f_2 \Rightarrow$

$f = 3f_2 - f_2 \Rightarrow \frac{10}{2} = \frac{2f_2}{2} \Rightarrow$

$F_2 = 5N$

και $f_1 = 15N.$

Ασκ. 4 σελ. 107

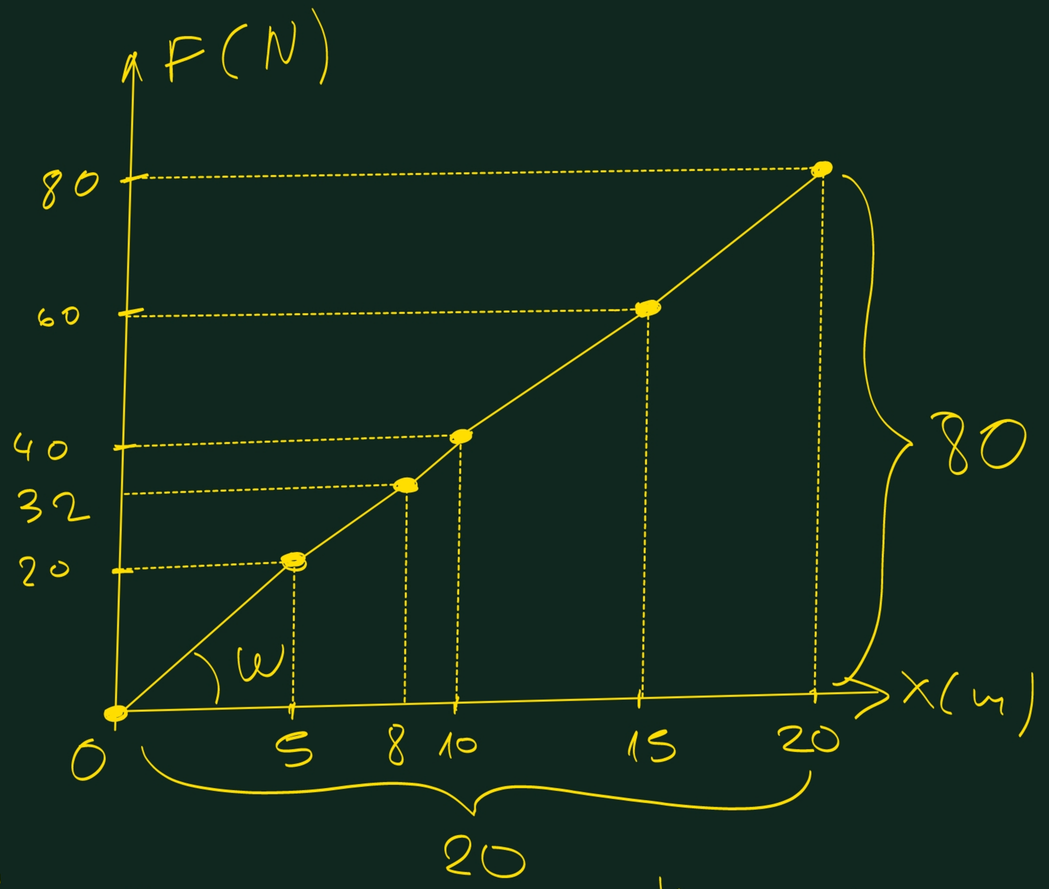
Α.

Επιμήκυνση (cm)	5	8	10	15	20
Δύναμη (N)	20	32	40	60	80

$$\frac{5}{x} = \frac{20}{80} \overset{:20}{\Rightarrow} \frac{5}{x} = \frac{1}{4} \Rightarrow$$

$$x = 20$$

Β.



Γ. $\text{υλίση} = \varepsilon\varphi\omega =$

$$= \frac{80\,N}{20\,cm} = 4\,N/cm$$

$$k = 4\,N/cm = 400\,N/m$$