

Λύση.

α)  $\Sigma T \eta \theta I: \Sigma F = 0 \Rightarrow$   
 $F_{es} = (m_1 + m_2)g \Rightarrow kd = (m_1 + m_2)g$   
 $\Rightarrow d = 2m.$

$\Sigma T \eta \theta I: \Sigma F = 0 \Rightarrow$   
 $F_{es}' = m_1 g \Rightarrow kd' = m_1 g \Rightarrow$   
 $d' = 1m.$

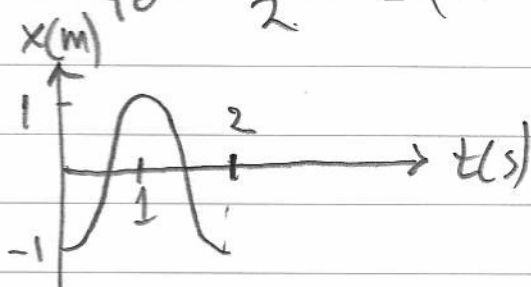
β)  $D = k = 100 \text{ N/m}$   
 και  $d - d' = A = 1m$

$E = \frac{1}{2} DA^2 = 50 \text{ J}.$

γ)  $\omega = \sqrt{\frac{k}{m}} = \sqrt{10} \text{ rad/s}.$   $T = \frac{2\pi}{\omega} = \frac{2\pi}{\sqrt{10}} \approx 2 \text{ s}.$

$\zeta_{\text{mv}} t=0, x=-A \Leftrightarrow \varphi = -A = A \eta \mu \varphi_0 \Rightarrow$

$\varphi_0 = \frac{3\pi}{2} \Leftrightarrow \varphi = x = \eta \mu (\pi t + \frac{3\pi}{2})$



δ)  $U = m_2 g h \Rightarrow h = 1,8m.$   $h = \frac{1}{2} g t^2 \Rightarrow t = 0,6 \text{ s}.$

$t_1 = \frac{T}{2} = 1 \text{ s}.$  Αρα το  $\Sigma_2$  θα φτάει πρώτο

