Ασκ. 3.42

$a_{K(0)} = \omega_0^2 R$

$a_{\Sigma(0)} = 2\omega_0^2 R = 2a_{K(0)}$

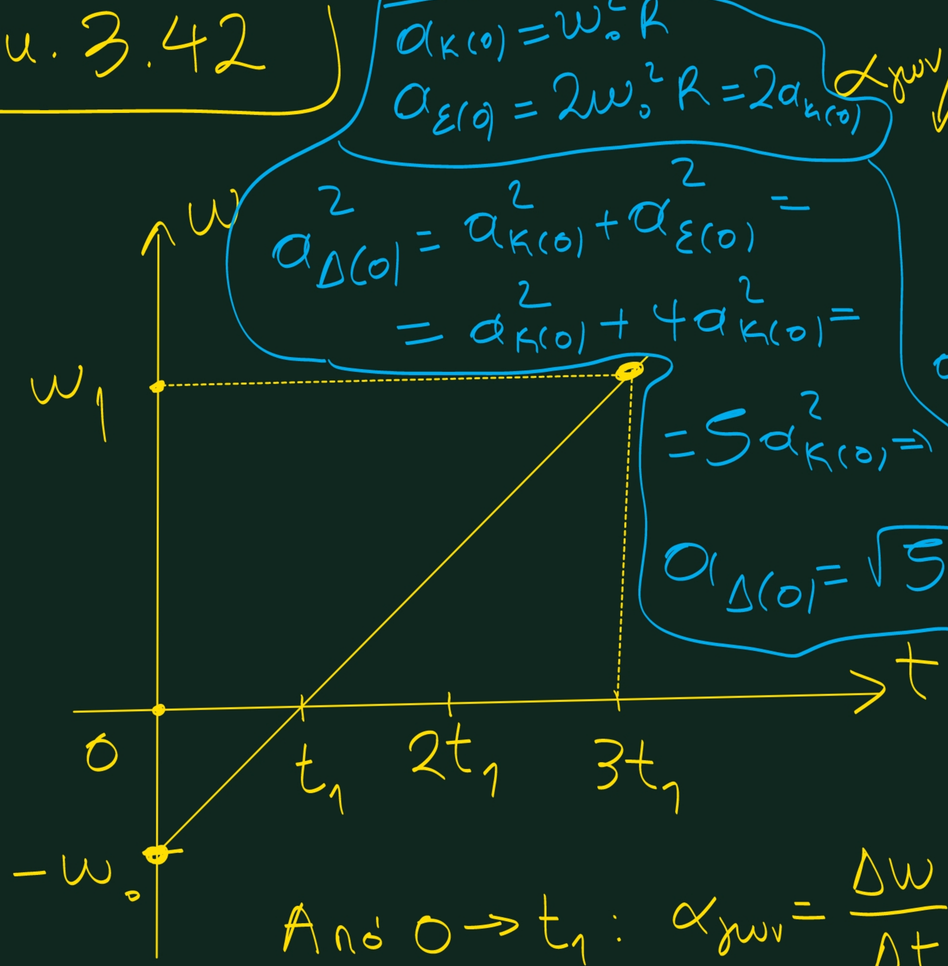
$a_{\Delta(0)}^2 = a_{K(0)}^2 + a_{\Sigma(0)}^2 =$

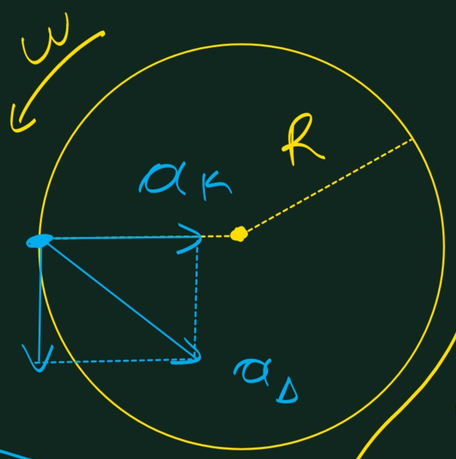
$= a_{K(0)}^2 + 4a_{K(0)}^2 =$

$= 5a_{K(0)}^2 \Rightarrow$

$a_{\Delta(0)} = \sqrt{5}\, a_{K(0)}$

Σωστό το (β)





$a_{K(0)} = \omega_0^2 \cdot R$

$a_{\Sigma(0)} = \alpha_{\gamma\omega\nu} \cdot R$

Τη στιγμή $3t_1$ έχουμε:

$a_{\Sigma(1)} = \dfrac{a_{K(1)}}{2} \Rightarrow$

$\alpha_{\gamma\omega\nu} \cdot R = \dfrac{\omega_1^2 \cdot R}{2} \Rightarrow \alpha_{\gamma\omega\nu} = \dfrac{4\omega_0^2}{2} \Rightarrow$

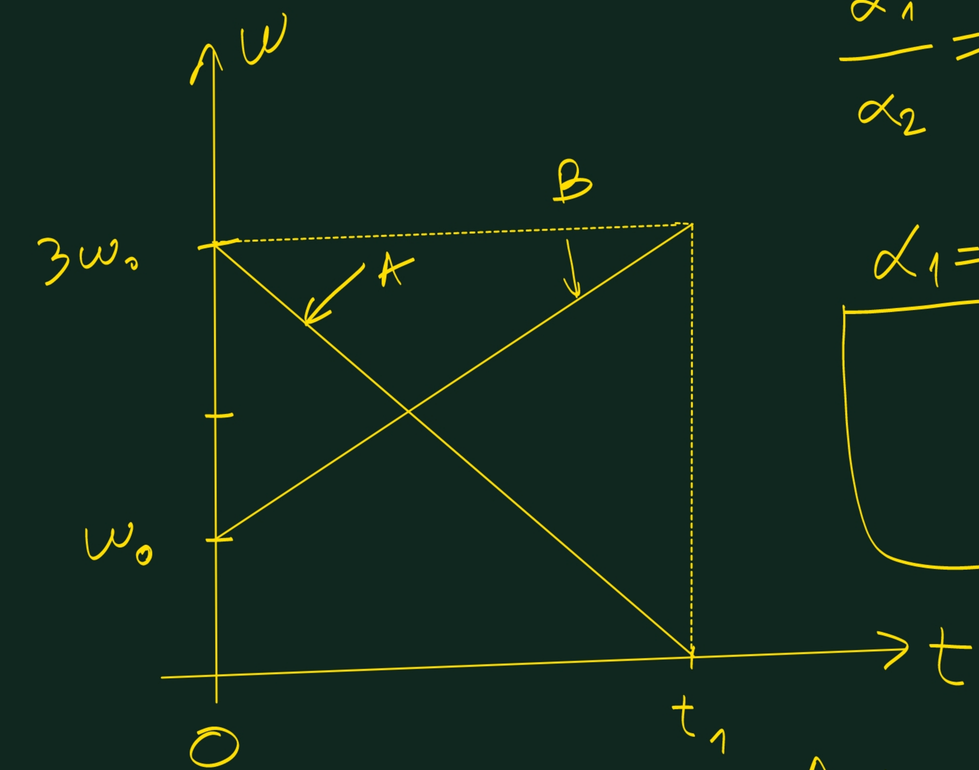
$\alpha_{\gamma\omega\nu} = 2\omega_0^2$

Από $0 \to t_1$: $\alpha_{\gamma\omega\nu} = \dfrac{\Delta\omega}{\Delta t} = \dfrac{0-(-\omega_0)}{t_1 - 0} = \dfrac{\omega_0}{t_1}$

Από $t_1 \to 3t_1$: $\alpha_{\gamma\omega\nu} = \dfrac{\Delta\omega}{\Delta t} = \dfrac{\omega_1 - 0}{3t_1 - t_1} = \dfrac{\omega_1}{2t_1}$

$\Rightarrow \dfrac{\omega_0}{t_1} = \dfrac{\omega_1}{2t_1} \Rightarrow \omega_1 = 2\omega_0$

Ασκ. 3.41



α) i) Για το (Α): $\alpha_1 = \frac{\Delta w}{\Delta t} = \frac{0 - 3w_0}{t_1 - 0} = -\frac{3w_0}{t_1}$

Για το (Β): $\alpha_2 = \frac{\Delta w}{\Delta t} = \frac{3w_0 - w_0}{t_1 - 0} = \frac{2w_0}{t_1}$

$$\frac{\alpha_1}{\alpha_2} = \frac{-\frac{3w_0}{t_1}}{\frac{2w_0}{t_1}} = -\frac{3}{2} = -1,5 \Rightarrow$$

$\alpha_1 = -1,5\alpha_2$ Σωστό το (iii)

β) i) Για το Α: $\Delta\theta_1 = \frac{3w_0 \cdot t_1}{2}$

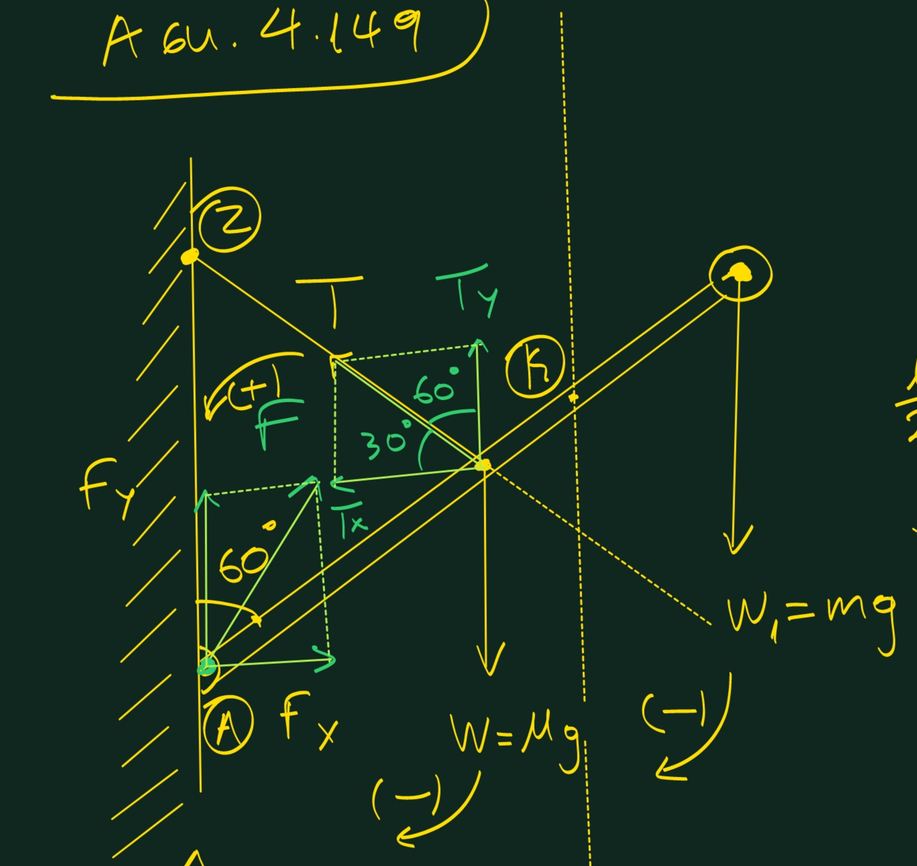
Για το Β: $\Delta\theta_2 = \frac{w_0 + 3w_0}{2} \cdot t_1 = 2w_0 t_1$

$$\frac{\Delta\theta_1}{\Delta\theta_2} = \frac{\frac{3w_0 t_1}{2}}{2w_0 t_1} = \frac{3}{4} \Rightarrow$$

$\Delta\theta_1 = 0,75\Delta\theta_2$

Σωστό το (iii)

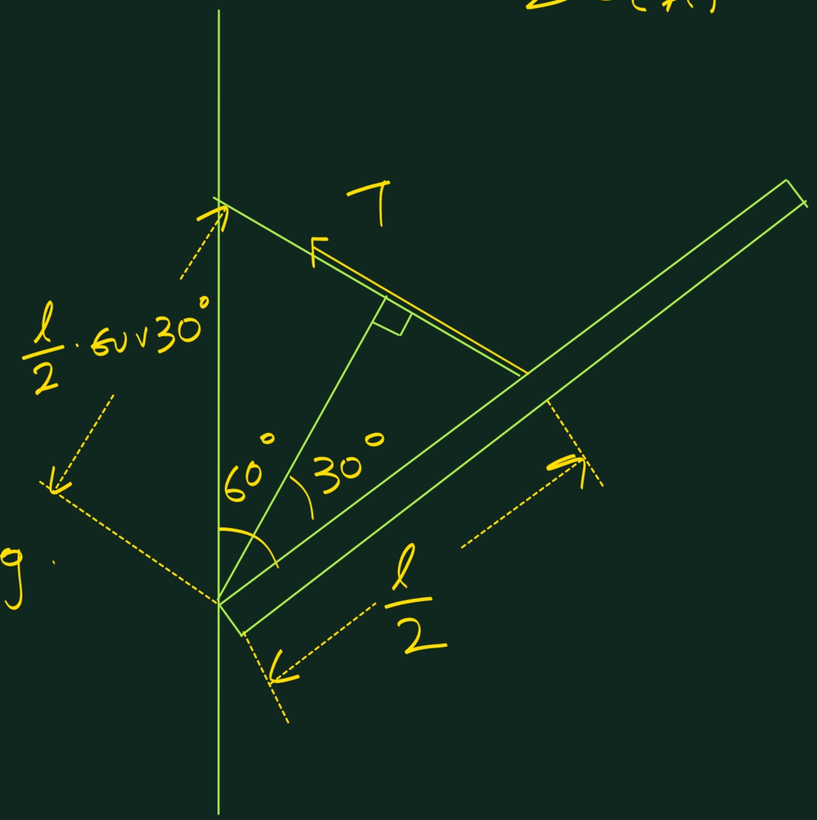
Ασκ. 4.149



Το ΑΚΖ είναι ισοσκελές αφού

$AK=KZ=\frac{l}{2}$

και ισόπλευρο αφού $\hat{ZAK}=60^\circ$



$\Sigma\tau_{(A)}=0 \Rightarrow \tau_{W(A)}+\tau_{W_1(A)}+$

$+\tau_{T(A)}=0 \Rightarrow$

$-W\cdot\frac{l}{2}\cdot\eta\mu 60^\circ - W_1\cdot l\cdot\eta\mu 60^\circ +$

$+T\cdot l\cdot\sigma\upsilon\nu 30^\circ = 0$