4993 pdf (ΑΠΑΝΤΗΣΗ)

ΘΕΜΑ Β

Β1) Α) β)

Β) Αφού κινείται με ταχύτητα δέχεται δύναμη αντίστασης από τον αέρα ανάλογη και βάρος. Επομένως η Εμηχ. μειώνεται.

Β2) Α) β)

Β) $S_A = \frac{1}{2} v_1 t_1$ $\left.\begin{array}{l} \\ S_B = v_1 t_1 \end{array}\right\} (:) \Rightarrow \frac{S_A}{S_B} = \frac{1}{2} \Rightarrow S_B = 2 \cdot S_A$

ΘΕΜΑ Δ

Δ1) $T_1 = \mu N_1 = \mu m_1 g = 60\,N$, $T_2 = \mu N_2 = \mu m_2 g = 100\,N$

Δ2) $\Sigma F = m_2 a \Rightarrow A - T_2 = m_2 a \Rightarrow A = 150\,N$

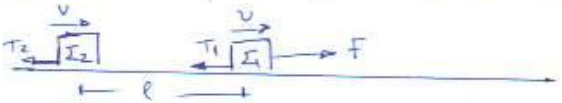
Δ3) $W_F = F \cdot x_1$

$\Sigma F = (m_1 + m_2) \cdot a \Rightarrow F - T_1 - T_2 = (m_1 + m_2) a \Rightarrow$

$F = T_1 + T_2 + (m_1 + m_2) a \Rightarrow F = 240\,N$

$x_1 = \frac{1}{2} a t_1^2 = 16\,m$ άρα $W_F = F \cdot x_1 = 3840\,J$

Δ4)



$v = a \cdot t_1 = 8\,m/s$

(Σ_2): $\Sigma F_2 = m_2 a_2 \Rightarrow a_2 = \frac{T_2}{m_2} = 4\,m/s^2$

(Σ_1): $\Sigma F_1 = m_1 a_1 \Rightarrow a_1 = \frac{F - T_1}{m_1} = 12\,m/s^2$

$x_2 = v(t_2 - t_1) - \frac{1}{2} a_2 (t_2 - t_1)^2 \Rightarrow x_2 = 24 - 18 = 6\,m$

$x_1 = v(t_2 - t_1) + \frac{1}{2} a_1 (t_2 - t_1)^2 \Rightarrow x_1 = 78\,m$

Είναι $l + x_1 = x_2 + \Delta x \Rightarrow \Delta x = l + x_1 - x_2$

$\Delta x = 2 + 78 - 6 = 74\,m$