

1990 pdf (ΑΠΑΝΤΗΣΗ)

ΘΕΜΑ Β

B1) A) γ)

B) $\Delta x = x_{\tau\eta} - \lambda_{\alpha\rho\chi} = -40 - 0 = -40\text{m}$

B2) A) α)

B) $K = W_f \Rightarrow \frac{1}{2} m v^2 = f \cdot \Delta x$
 $K' = W_{4f} \Rightarrow \frac{1}{2} m v'^2 = 4f \cdot \Delta x$ } $\Rightarrow v'^2 = 4v^2$
 $v' = 2v$

ΘΕΜΑ Δ

Δ1) $x_1 = \frac{1}{2} a_1 t_1^2 \Rightarrow a_1 = \frac{2x_1}{t_1^2} = \frac{90}{36} = 2,5\text{m/s}^2$

Δ2) $\Sigma F = m a_1 \Rightarrow F_1 + F_2 - F_3 = m a_1 \Rightarrow F_3 = 30\text{N}$

Δ3) $x_2 = 137 - x_1 = 92\text{m}$

$x_2 = v_1 (t_2 - t_1) + \frac{1}{2} a_2 (t_2 - t_1)^2$ $v_1 = a_1 t_1 = 15\text{m/s}$

$92 = 15 \cdot 4 + \frac{1}{2} a_2 \cdot 16 \Rightarrow a_2 = \frac{64}{16} = 4\text{m/s}^2$

$\Sigma F' = m a_2 \Rightarrow \Sigma F' = 80\text{N} = F_1 + F_2$

Αρα εκφράζουμε η F_3

Δ4) $v_2 = v_1 + a_2 (t_2 - t_1) = 15 + 16 = 31\text{m/s}$

$\Delta K = \Sigma W \Rightarrow \Sigma W = \frac{1}{2} m v_2^2 = 9 \cdot 10^2$