

Λυσεις θεματων 2011.1

ΘΕΜΑ Α

A1-β A2-γ A3-γ A4-α A5-δ

ΘΕΜΑ Β

B1-α (Α.Δ.Ο.)

B2-α (ΣF=0)

B3-β (ΣF=mα)

ΘΕΜΑ Γ

α) $F_x = F \cos \varphi = 16\text{N}$, $F_y = F \eta \mu \varphi = 12\text{N}$

β) $N = mg - F_y = 20 - 12 = 8\text{N}$ $T = \mu N = 4\text{N}$

γ) $F_x - T = ma \rightarrow 16 - 4 = 2a \rightarrow a = 6\text{m/s}^2$

δ) $u = at = 12\text{m/s}$ $x = 1/2 at^2 = 12\text{m}$

ΘΕΜΑ Δ

α) $N = mg \cos \varphi = 20 \cdot 0,8 = 16\text{N}$, $T = 0,5 \cdot 16 = 8\text{N}$

β) $F - T - mg \eta \mu \varphi = m \cdot a \rightarrow 24 - 8 - 12 = 2a \rightarrow a = 2\text{m/s}^2$

γ) $\Delta K = W_F + W_T + W_B = 24 \cdot 4 - 8 \cdot 4 - 12 \cdot 4 = 16\text{J}$

δ) $Q = |W_T| = |-T \cdot x| = 80\text{J}$.