

Subiectul A. MECANICĂ

Nr. item	Soluție/Rezolvare
III.a.	$m = m_1 + m_2$ $E_A = E_{c_A} + E_{p_A} = E_{p_A}$ $E_{p_A} = m \cdot g \cdot h$ <p>Rezultat final: $E_A = 2000J$</p>
b.	$E_B = E_A - L_{F_f} $ $ L_{F_f} = F_f \cdot \ell$ $\ell = \frac{h}{\sin \alpha} = \ AB\ $ $F_f = \mu \cdot m \cdot g \cdot \cos \alpha$ <p>Rezultat final: $E_B = 1000J$</p>
c.	$\frac{m \cdot v_B^2}{2} = m \cdot g \cdot h - \mu \cdot m \cdot g \cdot \ell \cdot \cos \alpha$ $v_B = \sqrt{2 \cdot g(h - \mu \cdot \ell \cdot \cos \alpha)} = \sqrt{2 \cdot g \cdot h(1 - \mu \cdot \operatorname{ctg} \alpha)}$ <p>Rezultat final: $v_B = 5\sqrt{2}m/s \cong 7,07m/s$</p>
d.	$-L_{f_{\text{orizontală}}} = E_B$ $\mu \cdot m \cdot g \cdot d = \frac{m \cdot v_B^2}{2} \Rightarrow d = \frac{v_B^2}{2 \cdot \mu \cdot g}$ $d = \left(\frac{h}{\mu} - \ell \cdot \cos \alpha \right) = h \left(\frac{1}{\mu} - \operatorname{ctg} \alpha \right)$ <p>Rezultat final: $d = 5\sqrt{3}m$</p>