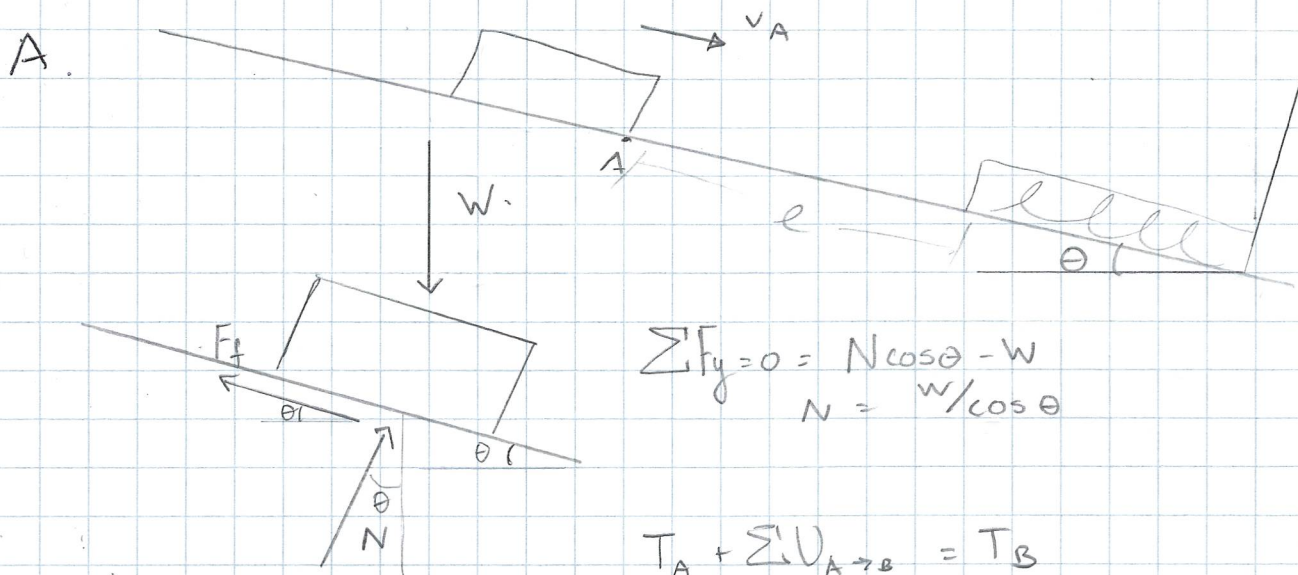


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Work of Force : Advanced

Q: Block A has a mass of M kg and travels towards a spring with a constant of $K = K$. The incline has a kinetic coefficient of $\mu_k = \mu$. The block strikes the plate and pushes it down D m. If the length of distance travelled is l m, what speed does the block move at?

and comes to a stop



$$\sum F_y = 0 = N \cos \theta - W$$

$$N = W / \cos \theta$$

$$T_A + \sum U_{A \rightarrow B} = T_B$$

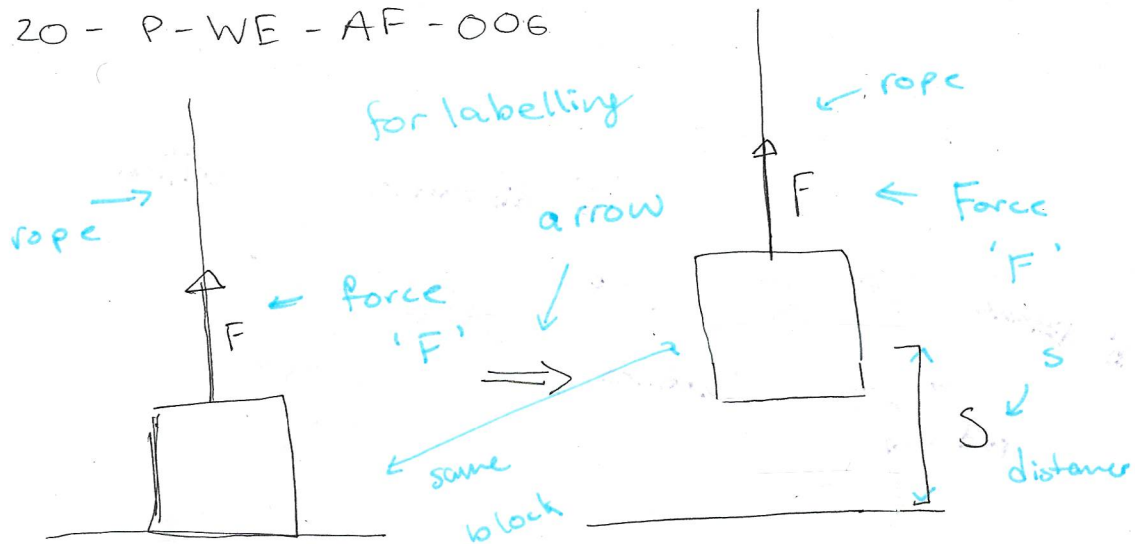
$$\sum U_{A \rightarrow B} = Mg[l + D] \sin \theta - \mu N[l + D] + \frac{1}{2} K (0^2 - D^2)$$

$$T_B = 0$$

$$T_A = \frac{1}{2} m v_A^2$$

$$v_A = \sqrt{\frac{-2 \cdot \sum U_{A \rightarrow B}}{m}}$$

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