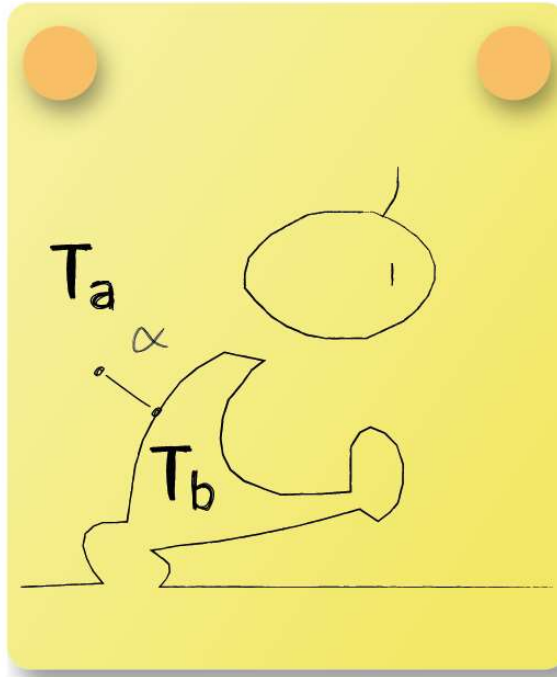


Lecture 6 - Question 5



A man is walking in still air. Determine the rate of heat loss. Radiation can be neglected. Assume steady-state heat transfer. Take $T_a = 10\text{ }^{\circ}\text{C}$, $T_b = 30\text{ }^{\circ}\text{C}$, $\alpha = 15\text{ W/m}^2\text{K}$, $A_s = 2\text{ m}^2$.

The rate of heat loss is characterized by convective heat transfer.



$$\dot{Q}_{conv} = \alpha \cdot A_s \cdot (T_b - T_a)$$

Filling in the numerical values:

$$\dot{Q}_{conv} = 15 \cdot 2 \cdot (30 - 10) = 600\text{ W}$$