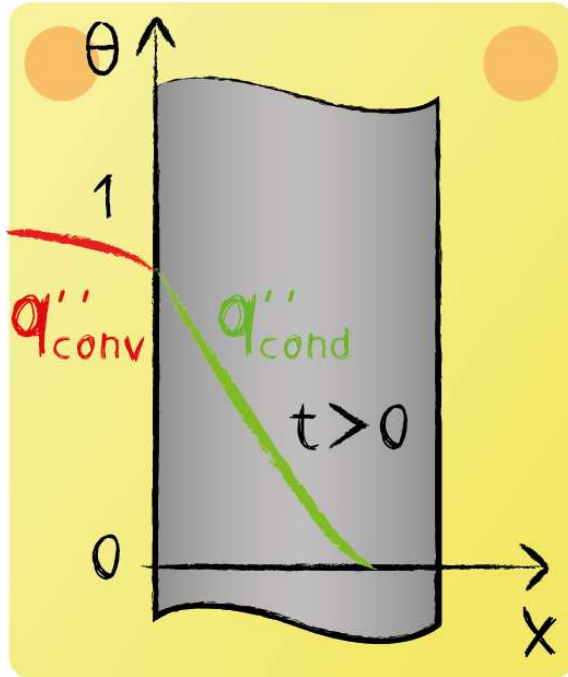


## Lecture 16 - Question 3



Consider the following semi-infinite body where heat transfer on the outside is not neglected. Which boundary conditions are applicable?

$$\left. \begin{array}{l} t > 0 \\ x \rightarrow \infty \end{array} \right\} T = T_0$$



States that the body temperature for  $x \rightarrow \infty$  equals the initial body temperature. This can be seen from the fact that for  $x \rightarrow \infty$ ,  $\theta^* = \frac{T - T_0}{T_A - T_0} = 0$

$$\left. \begin{array}{l} t > 0 \\ x = 0 \end{array} \right\} \frac{\partial T}{\partial x} \Big|_{x=0} = \frac{\alpha}{\lambda} (T_{x=0} - T_A)$$

Results from the fact that  $q''_{conv} = q''_{cond}$