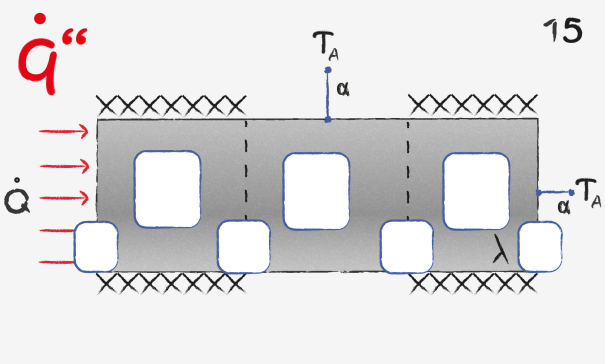
Axial Heat Flux: Task 15



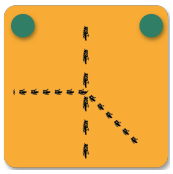
The image describes a rectangular body with an imposed heat flux on the right and heat loss through convection in the central and right surface. The walls on the top and bottom of the left and right are adiabatic.

1 

The imposed heat flux yields a positive profile.

2 

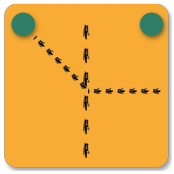
Adiabatic walls force the heat flux to stay constant.

3 

The transition is characterized by a kink from constant to decrease, since from here on heat is lost due to convection.

4 

Convection causes the specific heat flux to decrease. Due to temperature loss less heat is convected towards the right.

5 

In the third section walls are adiabatic, yielding another kink in the specific heat flux profile at the transition.

6 

Adiabatic walls lead to a constant heat flux.

7 

Due to the convective wall, heat flux remains positive at the boundary.