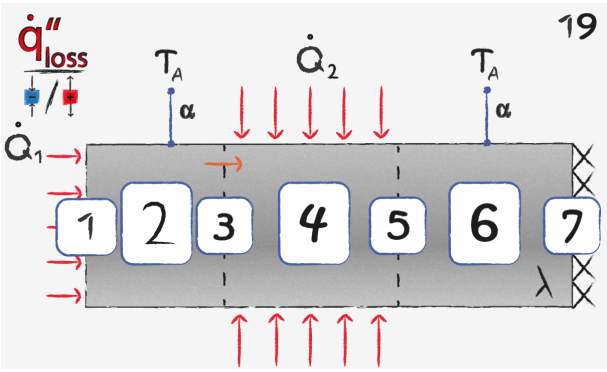
Heat Loss: Task 19



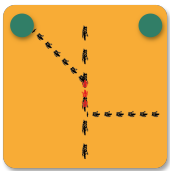
The image describes a rectangular body with imposed heat fluxes on the left and the center. The arrow indicates the direction of the heat flux at the transition. The wall on the right side is adiabatic and there is a heat loss through convection in the right and left section.

1 

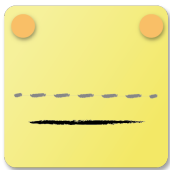
The imposed heat flux yields a negative temperature gradient, which results in a decreasing convective heat loss.

2 

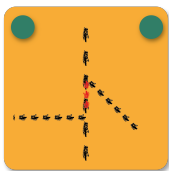
Convective heat loss is positive, since heat is brought into the system via conduction. Decreasing temperature difference of fin and environment causes a decrease of convective heat loss.

3 

At the transition the heat loss jumps to the given value of the imposed heat flux.

4 

The positive imposed heat flux is synonymous with a constant negative heat loss.

5 

The transition is characterized by a jump from negative to positive heat loss, caused by the switch from heat source to convective wall.

6 

Heat loss is qualitatively corresponding to the first convective section.

7 

The adiabatic wall leads to a zero gradient of temperature and convective heat loss.