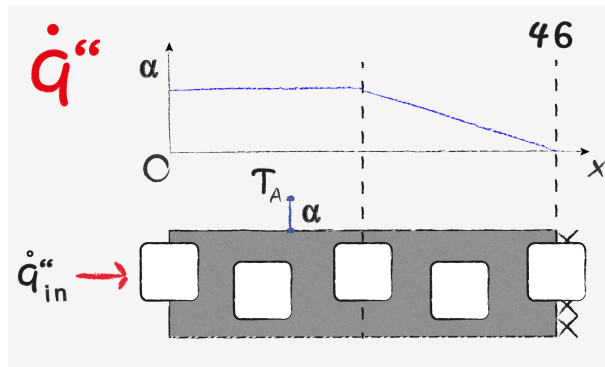# Heat Loss: Task 46

The image describes a fin with constant heat conduction coefficient in the left section, which then decreases linearly in the right section. The wall on the right side is adiabatic and a heat flux is imposed on the left.
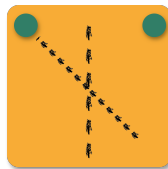
1 The imposed heat flux yields a negative temperature gradient, which results in a decreasing convective heat loss.

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.
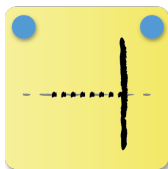
3 At the transition the heat transfer coefficient is continuous and so is the convective heat flux.

4 Heat loss is decreasing, since it is driven by a decreasing temperature difference. Moreover the decreasing heat transfer coefficient supports this trend.

5 The adiabatic wall causes the temperature gradient and therefore the convective heat flux gradient to vanish. Since the heat transfer coefficient approaches zero, the heat loss does so too.