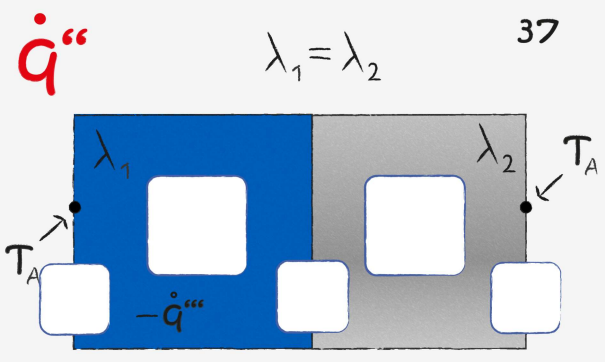
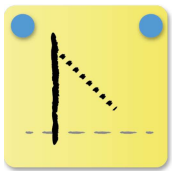
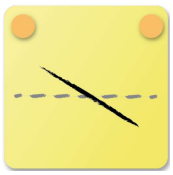
Axial Heat Flux: Task 37



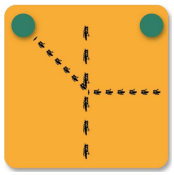
The image describes a rectangular body with a volumetric heat sink in the left section. Thermal conductivities of the sections are equal. At the left and right, temperature is given to be T_A.

1 

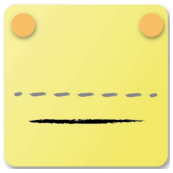
The heat sink yields a positive heat flux at the left, indicating that heat is conducted into the body.

2 

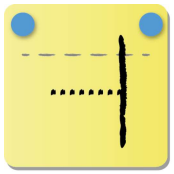
The volumetric character of the heat sink forces the heat flux to decrease in a linear manner. Due to equal temperatures at the body's ends, there is also a heat flux from the right end towards the sink, meaning that the profile decrease to a negative value.

3 

The transition is marked by a kink in specific heat flux, since the heat sink ends here.

4 

Cross section is constant and no source or sink terms are present, hence the specific heat flux is conserved in this section ...

5 

... and remains constant towards the right.