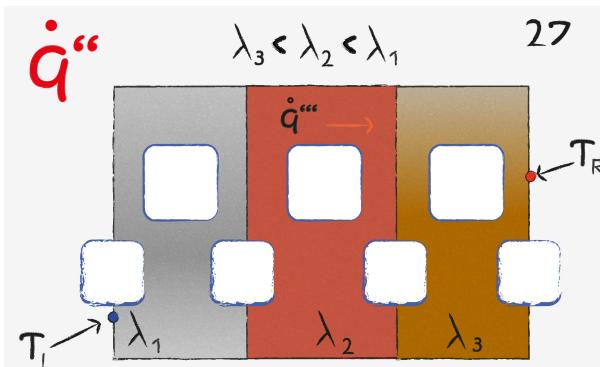




Axial Heat Flux: Task 27



The image describes a rectangular body consisting of three sections of equal length. The central section contains a volumetric heat source; thermal conductivities differ from section to section. The arrow indicates, that even though the temperature at the right is higher than at the left, heat is partially transported towards the right.

- 1 Heat flow towards the left is yielding a negative heat flux at the first section.
- 2 Since the area is constant the specific heat heat flux is so too.
- 3 The transition is characterized by a kink from constant to increase, since it marks the beginning of the heat source.
- 4 The volumetric heat source leads to a linearly increasing specific heat flux.
- 5 The transition is characterized by a kink from increase to constant, since it marks the end of the heat source.
- 6 As in the first section, the heat flux remains constant. Due to the higher temperature on the right and smaller thermal conductivity compared to the first section, the absolute heat flux in the third section is less than in the first section.
- 7 Heat flux remains at a constant level to the right boundary.