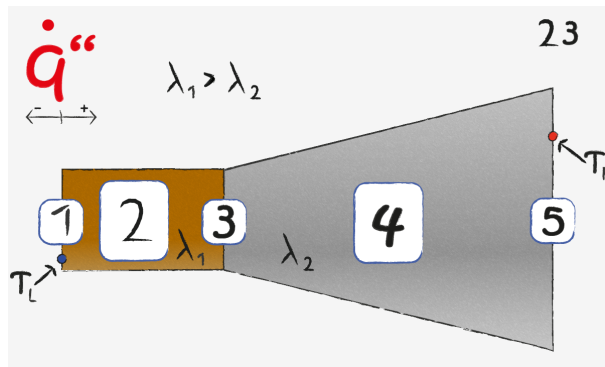




Axial Heat Flux: Task 23



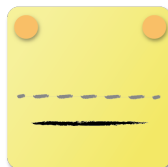
The image describes a rectangular body connected to a body with area increasing linearly from left to right. Thermal conductivity is lower in the right section and the maximum temperature is on the right side.

1



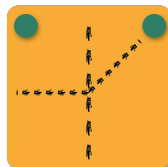
Higher temperature on the body's right side indicates heat flow towards the left, which leads a negative heat flux.

2



Constant cross section yields a constant specific heat flux.

3



The transition is characterized by a kink in specific heat flux, as from here on the area increases.

4



Linear increase of the area causes the absolute value of specific heat flux to decrease proportional to $\frac{1}{x}$. The negative sign yields in fact a heat flux with a positive gradient.

5



Since heat is conducted from right to left, the heat flux on the right boundary is still negative.