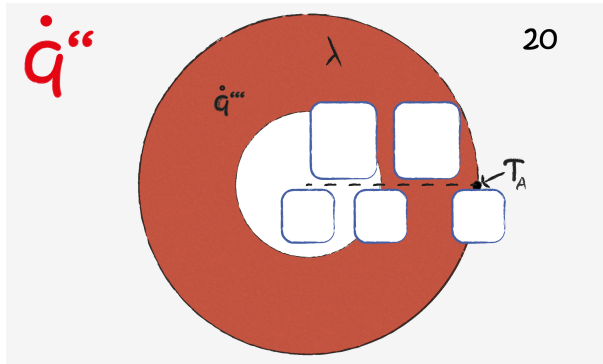
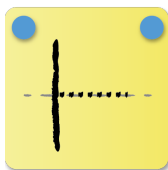


# Axial Heat Flux: Task 20



The image describes a cylindrical body consisting of two layers of infinite extension. The outer compartment contains a volumetric heat source.

1



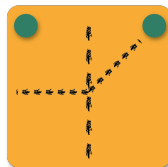
Due to symmetry reasons, the specific heat flux at the center is zero.

2



Since no heat can be accumulated in the system, the specific heat flux remains zero.

3



The transition is characterized by a kink in specific heat flux, as it marks the beginning of the volumetric heat source.

4



The volumetric heat source causes the specific heat flux to increase proportional to  $r - \frac{r_i^2}{r}$ , where  $r_i$  describes the radius of the inner compartment.

5



To fulfill the energy balance in a steady case, the specific heat flux is positive at the boundary, indicating a flux from inside to outside.