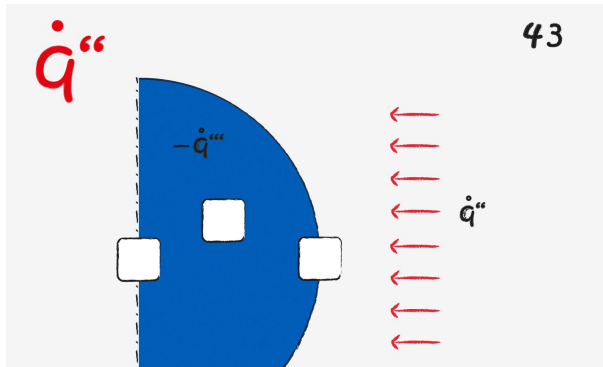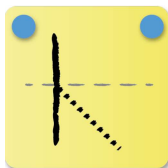# Axial Heat Flux: Task 43

The image describes a cylinder consisting of a volumetric heat sink.

1

Due to symmetry conditions, the specific heat flux vanishes at the symmetry axis.

2

The volumetric heat sink yields a negative heat flux, meaning heat is dissipated in the body. the linear slope of specific heat flux is due to the effects of quadratic increasing heat flux and linear increasing cross sectional area.

3

Specific heat flux at the outer boundary is still negative, equaling the incoming heat. The gradient is the same as obtained from considerations within the section before.