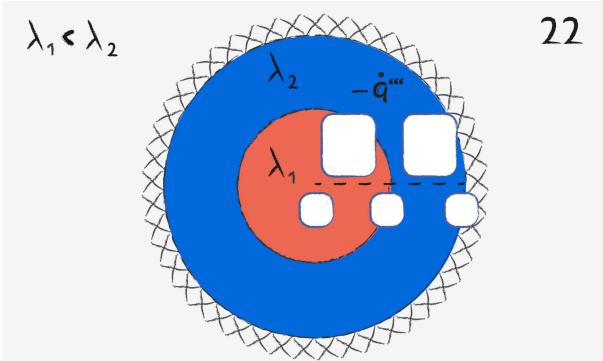


Axial Heat Flux: Task 22



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The image describes a cylindrical body consisting of two layers of infinite expansion. The inner compartment contains a volumetric heat source while the outer compartment contains a volumetric heat sink.

- 1 Due to symmetry reasons, the specific heat flux at the center is zero.
- 2 The volumetric heat source causes the specific heat flux to increase linearly.
- 3 The transition is characterized by a kink in specific heat flux, as it marks the ending of the volumetric heat source and beginning of the volumetric heat sink.
- 4 The volumetric heat sink causes the specific heat flux to decrease proportional to $r - \frac{r_i^2}{r}$, where r_i describes the radius of the inner compartment.
- 5 Since the outer wall is adiabatic, the heat flux approaches zero at the boundary.