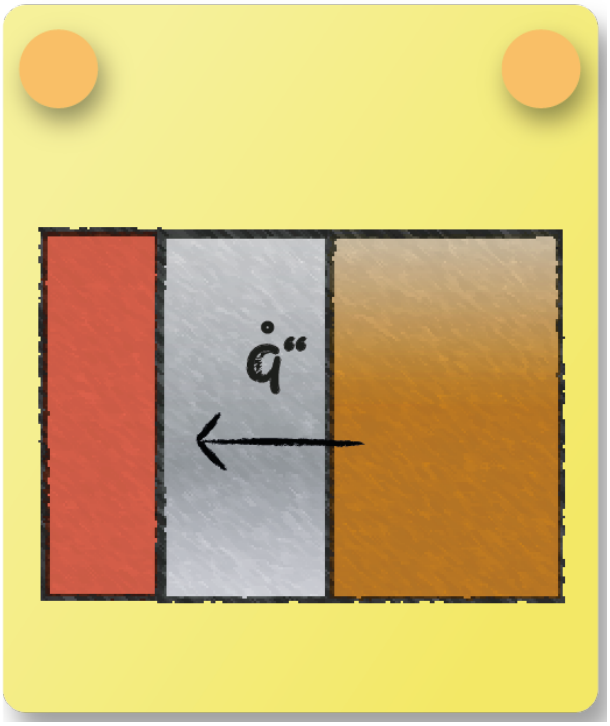
Lecture 4 - Question 3



Given a wall consisting of three layers. How many differential equations, coupling conditions and boundary conditions are required for a unique solution?

As thermal conductivities within the wall segments might differ from each other three differential equations are required. Boundaries are specified either as given temperatures or heat fluxes yielding two boundary conditions in total. At the interfaces temperature as well as the heat flux must be continuous, that is two coupling conditions are required for each interface.