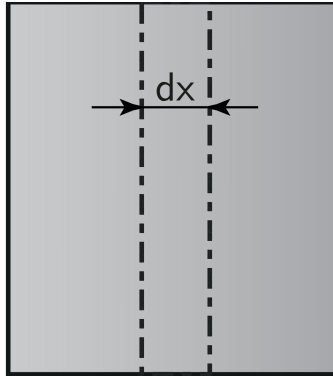


Control Volume - Cond. - IE 3

A wall is losing heat to the environment. Assume one-dimensional steady-state heat without a source. Pick the correct control volume for setting up an energy balance to calculate the temperature profile inside the wall.



Defining the domain:

The temperature profile in a body can be determined by solving the heat equation. The heat equation yields from setting up an energy balance of an infinitesimal element inside the relevant body.

The temperature only changes when moving from left to right, which we will use as the x-direction. Therefore a one-dimensional infinitesimal element in Cartesian coordinates is suitable for solving the problem.