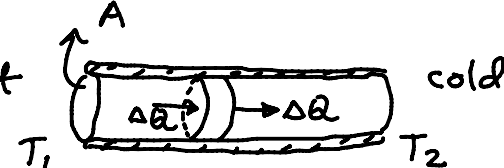


Class XI, Thermal Conduction

Steady state of heat flow: Hot  Cold

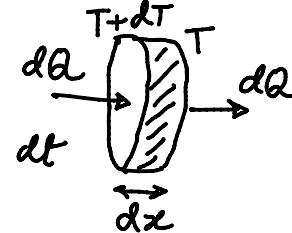
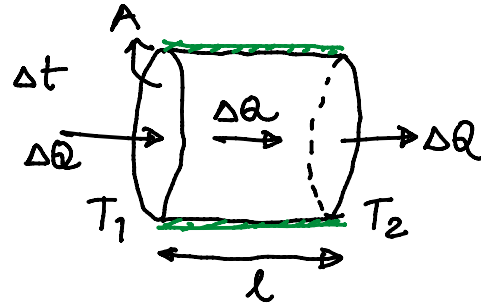
$$\Delta Q = k \frac{A(T_1 - T_2) \Delta t}{l} \quad \text{--- (1)}$$

$$\frac{\Delta Q}{\Delta t} = k \frac{A(T_1 - T_2)}{l} \quad \text{--- (2)}$$

$\frac{\Delta Q}{\Delta t}$ → rate of heat flow

$$\frac{dQ}{dt} = -kA \left(\frac{dT}{dx} \right) \quad \text{--- (3)}$$

$\frac{dT}{dx}$ → rate of change of temp with distance measured along the direction of heat flow
→ Temperature gradient



Comparison of Heat flow and charge flow through a conductor