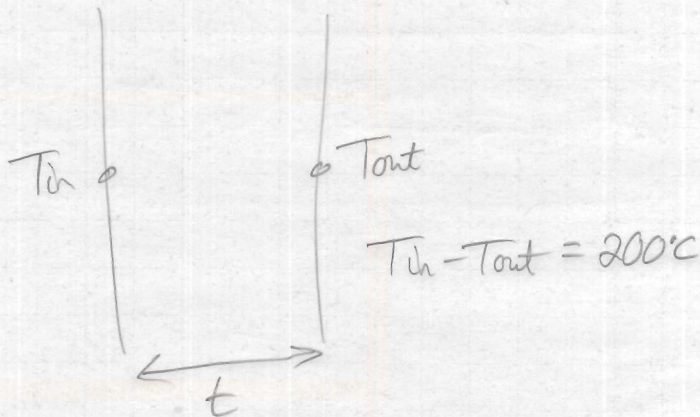


Heat Transfer Question

a) Radiation

b) Conduction

c) Fourier's law: $\frac{q_x}{A} = -k \frac{\partial T}{\partial x} = -k \frac{dT}{dx}$ since 1D



$$\frac{q_x}{A} = -k \frac{\Delta T}{\Delta x} \quad \text{since } \frac{dT}{dx} = \text{constant}$$

$$\Delta x = \frac{-k \Delta T}{q_x/A} = \frac{(0.04 \frac{\text{W}}{\text{mK}})(-200^\circ\text{C})}{400 \text{ W/m}^2}$$

$$\Delta x = 0.02 \text{ m}$$