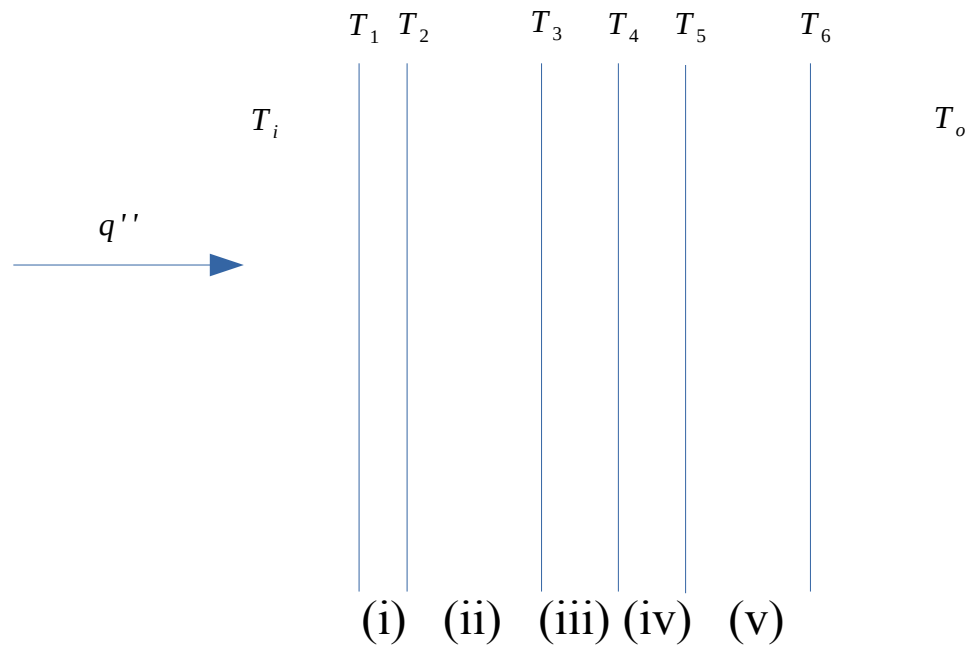


## HW2, PP1



Heat flux at steady state is

since we assume steady state:

$$q''_1 = (T_i - T_1) / R_1$$

$$q''_2 = (T_1 - T_2) / R_2$$

...

$$q'' = (T_i - T_o) / R_{tot}$$

$$q''_1 = q''_2 = q''_3 = \dots = q''$$

Thermal resistance for conduction is

$$R = l / k$$

And for convection

$$R = 1 / h$$

Total thermal resistance in series is

$$R_{tot} = R_1 + R_2 + R_3 + \dots + R_n$$

(a) calculate heat flux

Hint: use indoor convection resistance

(b) calculate rock wool layer thickness

Hint: calculate first the total thermal resistance and then the thermal resistance of the rock wool layer