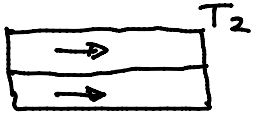
$$\frac{\Delta Q}{\Delta t} = \frac{KA}{\ell} \cdot \left(\frac{T_1 - T_2}{2}\right) \quad \text{--- (2)}$$

↳ rate of heat flow through the series combination

For the parallel combination



$$\frac{\Delta Q'}{\Delta t} = \frac{\Delta Q_1}{\Delta t} + \frac{\Delta Q_2}{\Delta t}$$

$$= K_1 \frac{A_1(T_1 - T_2)}{\ell} + K_2 \frac{A_2(T_1 - T_2)}{\ell}$$

$$= \frac{KA}{\ell}(T_1 - T_2) + \frac{KA}{\ell}(T_1 - T_2)$$

$$\frac{\Delta Q'}{\Delta t} = 2\frac{KA}{\ell} \cdot (T - T_2) \quad \text{--- (3)}$$

ratios of rate of heat flow

$$\frac{(\Delta Q/\Delta t)}{(\Delta Q'/\Delta t)} = \frac{\frac{KA}{\ell}\left(\frac{T_1 - T_2}{2}\right)}{2\frac{KA}{\ell}(T_1 - T_2)} = \frac{1}{4}$$