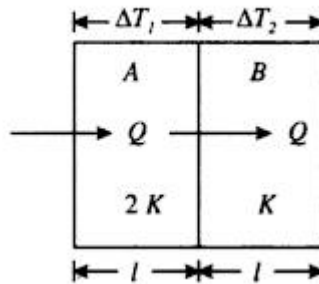# Answer on Question #50093, Physics, Other

Task:

A wall has two layers A and B, each made of different material. Both the layers have the same thickness. The thermal conductivity for A is twice that of B. Under steady state, the temperature diference across the whole wall is 36^0C. Then what is the temperature difference accross the layer A ?

Solution:

In thermal equilibrium, the rate of flow across the two layers is the same.

$$\frac{2K(\Delta T_1)A}{l} = \frac{K(\Delta T_2)A}{l}$$

$$\Rightarrow \frac{\Delta T_1}{\Delta T_2} = \frac{1}{2}$$

$$\Rightarrow \frac{\Delta T_1}{36 - \Delta T_1} = \frac{1}{2} \Rightarrow \Delta T_1 = 12^0 C$$

Answer: the temperature difference across the layer A is 12^0C.