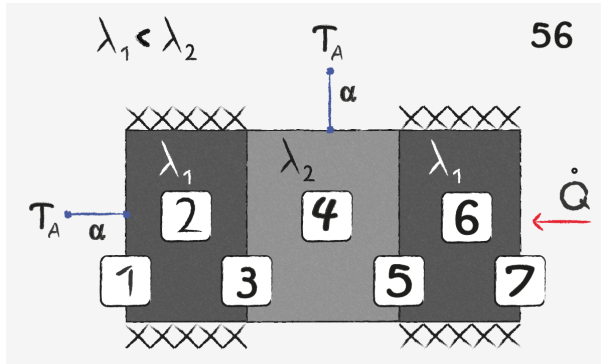




Heat Conduction: Task 56



The image describes that there are three rectangular walls. First and third walls are adiabatic and have the same heat conductivity. Heat flux is coming from right hand side. Consider convection in the first and second walls.

1



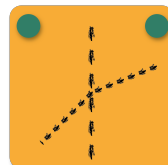
The temperature gradient on the left side is decreasing from right to left.

2



According to Fourier's law. At constant area and heat conductivity the temperature gradient decreases linearly from right to left.

3



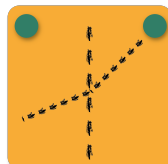
λ_1 is smaller than λ_2 which means the temperature gradient in 1 is steeper than in 2.

4



Due to the heat loss through convection, the temperature gradient decreases from right to left

5



λ_1 is smaller than λ_2 which means the Temperature gradient in 1 is steeper than in 2.

6



According to Fourier's law. At constant area and heat conductivity the temperature gradient decreases linearly from right to left.