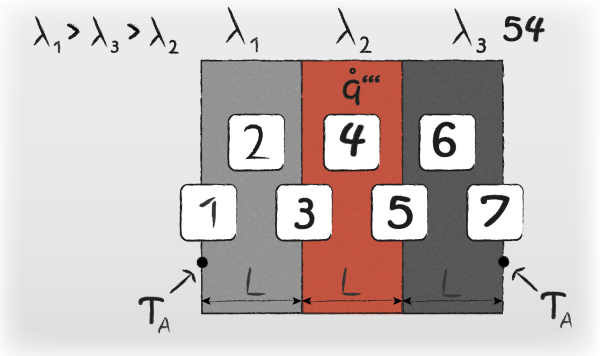
Heat Conduction: Task 54



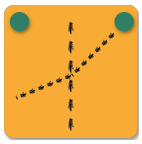
The image describes there are three rectangular walls that have same length. There is a heat source in the middle. Temperature is the same in the left and right.

1 

Heat flows from the center to the right and left side so the temperature gradient on the left side is decreasing from right to left.

2 

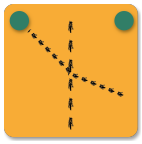
According to Fourier's law. At constant area and heat conductivity the temperature gradient decreases linearly from right to left.

3 

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

4 

The heat flows to the right and to the left so there must be a temperature maximum in area 2 and since the thermal resistance in area 1 is smaller than in area 3 (λ_1 larger than λ_3) , the temperature gradient to the left is steeper than to the right.

5 

λ_2 is smaller than λ_3 which means the Temperature gradient in 2 is steeper than in 3.

6 

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

7 

Heat flows from the center to the right and left side so the temperature gradient on the right side is decreasing from left to right.