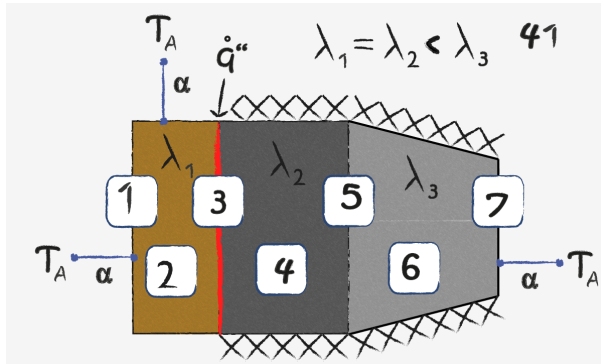




## Heat Conduction: Task 41



The image describes two rectangular and one trapezoid wall. Second and third wall are adiabatic and at the end of the first wall's line there is a heat flux. Consider heat conductivity 1 and 2 is equal. ( $\lambda_1 = \lambda_2$ )

1



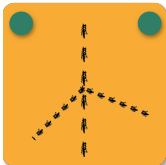
The Temperature gradient on the left side is decreasing.

2



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

3



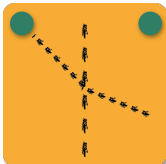
Due to the lower heat resistance more heat is conducted to the left. Equal thermal conductivities  $\lambda_1$  and  $\lambda_2$  yield a steeper temperature profile to the left.

4



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

5



$\lambda_2$  is smaller than  $\lambda_3$  which means the Temperature gradient in 2 is steeper than in 3.

6



The temperature gradient increases by decreasing the area.