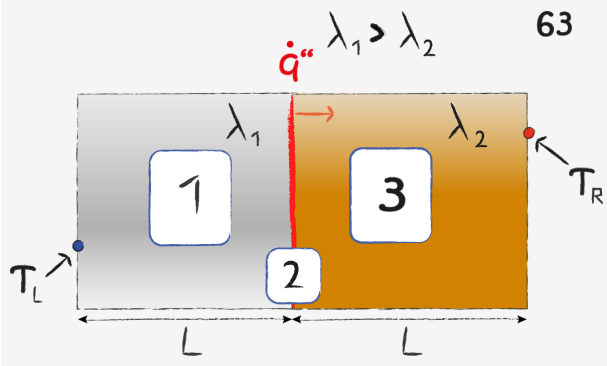
Heat Conduction: Task 63



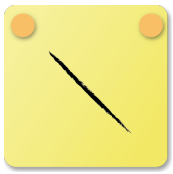
The image describes a body consisting of two sections with a sheet shaped heat source at the transition. Thermal conductivity is greater within the first section and heat flux orientation is given to be towards the right within the second section.

1 

Due to constant cross section area, thermal conductivity and heat flux within the section, temperature gradient is constant as well. As heat flux is oriented towards the right in the second section, temperature at the transition must be higher compared to the right boundary. With temperature at the left given to be less than at the right, this yields a positive temperature gradient within the first section.

2 

As stated before, maximum temperature is located at the transition. Considering the problem's geometry with sections that are equal in length, temperature gradient must be steeper in the first section compared to the left.

3 

For the same reasons as in the first section, temperature gradient is constant. To fulfill the given heat flux orientation, temperature is decreasing towards the right.