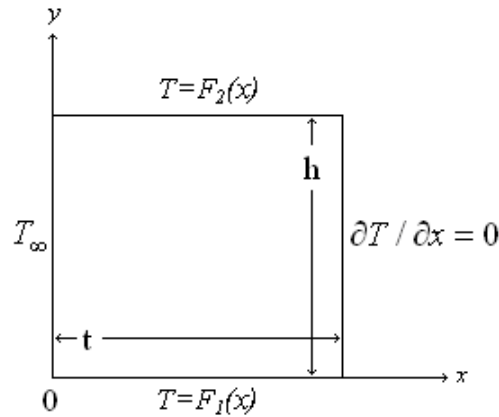


1. An infinity long and rectangular profile slab with thickness of t , height of h and constant thermal conductivity of k , is placed between two systems whose temperature distribution are shown as follow. The slab is isolated from one side and is exposed to ambient air at temperature of T_∞ from the other side.

- Derive a mathematical model to describe the slab temperature.
- Write the slab boundary conditions.
- Solve the model by implementing an analytical method.



2. An infinity long and rectangular profile slab with thickness of $\pi/2$ and height of 2 generates heat with rate of $q(x)=k[\sin^3 x - \sin x]$ per unit volume. The thermal conductivity of the slab, k , is constant. Two sides of the slab are isolated and the others are exposed to an environment having constant temperature of T_∞ .

- Derive a formulation for the problem.
- Find the slab temperature distribution.

