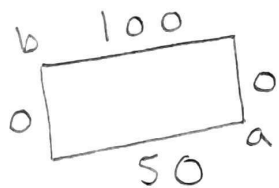


$$1. \frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$$



$$BC : u(0, y) = 0$$

$$u(a, y) = 0$$

$$u(x, 0) = 50$$

$$u(x, b) = 100$$

For the solution $u(x, y)$, let $u(x, y) = \underbrace{\sum_{i=1}^2 u_i(x, y)}_{\text{Subproblems}}$

i.e. domain = +

$$\text{then } \frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = \left(\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} \right) u = \left(\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} \right) (u_1 + u_2)$$

Now, we have the following subproblems:

$$1. \frac{\partial^2 u_1}{\partial x^2} + \frac{\partial^2 u_1}{\partial y^2} = 0$$

$$2. \frac{\partial^2 u_2}{\partial x^2} + \frac{\partial^2 u_2}{\partial y^2} = 0$$