Equação de difusão do Calor 2D

$$\frac{\partial u}{\partial t} = \alpha \left(\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} \right)$$

Onde:

$u(x, y, t)$: Temperatura no ponto (x, y) em um dado instante t.

Condição inicial: $u(x, y, 0) = 0$

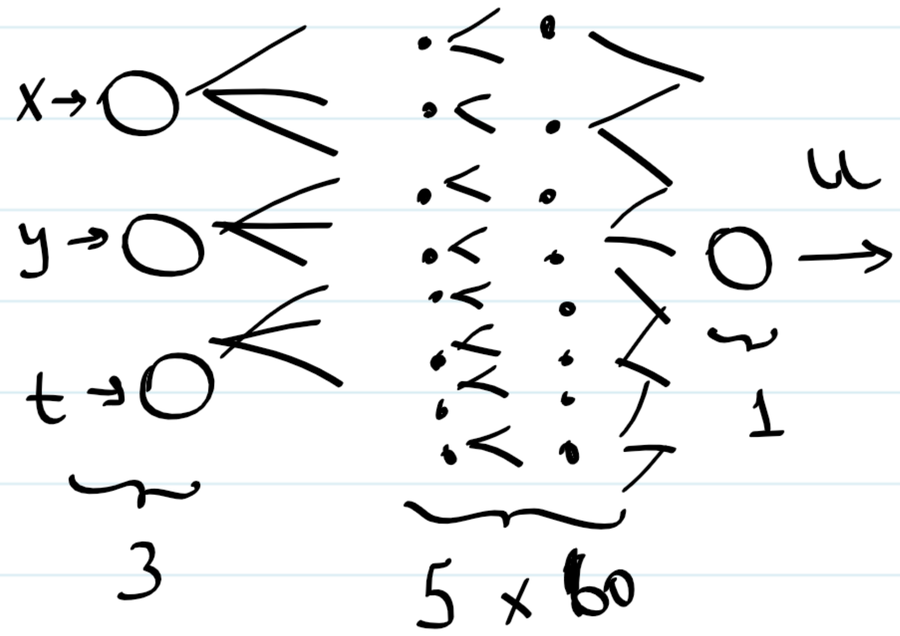
Condições de contorno:

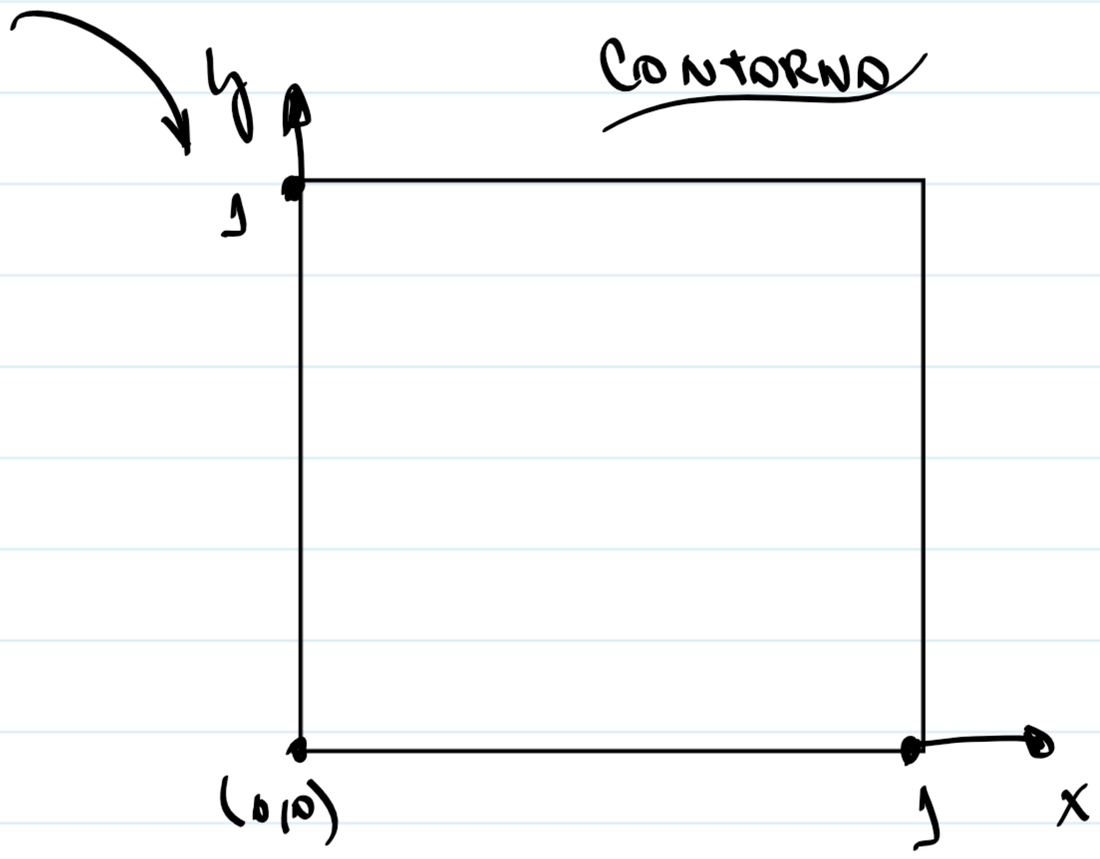
$$u(0, y, t) = 0$$
$$u(1, y, t) = 0$$
$$u(x, 0, t) = 0$$
$$u(x, 1, t) = 1$$

Onde: $x, y, t \in [0, 1]$

E $\alpha = 0.01$

Rede Neural





$$\delta(w \cdot x + b) = \tanh(w \cdot x + b)$$

$$L = L_{pde} + L_{BC\_e} + L_{BC\_n} + L_{BC\_d} + L_{BC\_w} + L_{IC}$$