

A diagram illustrating a boundary value problem for a partial differential equation (PDE) on a rectangular domain. The domain is defined by the axes x and y .

The boundary conditions are specified as $u = 0$ on all four sides of the rectangle:

- Top boundary: $u = 0$
- Bottom boundary: $u = 0$
- Left boundary: $u = 0$
- Right boundary: $u = 0$

The PDE governing the function u inside the domain is:

$$-\nabla^2 u = f$$