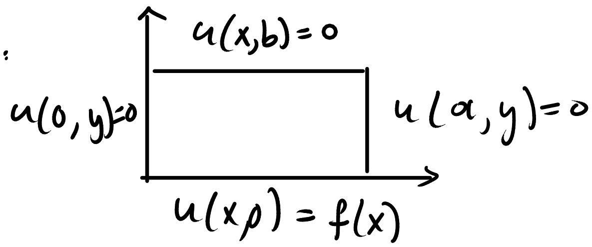
Thus $c_n = \left[\sinh\left(\frac{n\pi b}{a}\right)\right]^{-1} \frac{2a(-1)^{n+1}}{n\pi}$

So $u(x,y) = \sum_{n=1}^{\infty} \left[\sinh\left(\frac{n\pi b}{a}\right)\right]^{-1} \frac{2a(-1)^{n+1}}{n\pi} \sinh\left(\frac{n\pi y}{a}\right) \sin \frac{n\pi x}{a}$

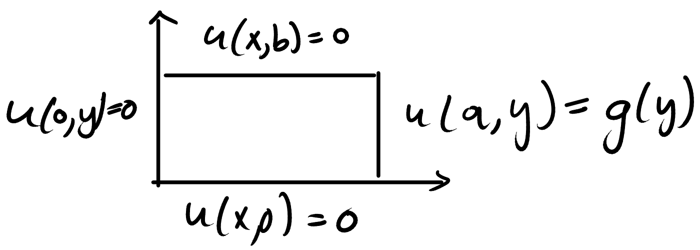
OTHER CASES:



$$u(x,y) = \sum_{n=1}^{\infty} c_n \sinh\left(\frac{n\pi(b-y)}{a}\right) \sin\left(\frac{n\pi x}{a}\right)$$

$$u(x,0) = \sum c_n \sinh\left(\frac{n\pi b}{a}\right) \sin\left(\frac{n\pi x}{a}\right) = f(x)$$

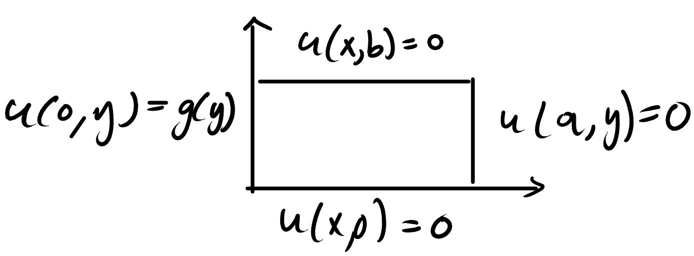
$$c_n = \left[\sinh \frac{n\pi b}{a}\right]^{-1} \frac{2}{a} \int_0^a f(x) \sin \frac{n\pi x}{a}\, dx$$



$$u(x,y) = \sum_{n=1}^{\infty} c_n \sinh\left(\frac{n\pi x}{b}\right) \sin\left(\frac{n\pi y}{b}\right)$$

$$u(a,y) = \sum_{n=1}^{\infty} c_n \sinh\left(\frac{n\pi a}{b}\right) \sin\left(\frac{n\pi y}{b}\right) = g(y)$$

$$c_n = \left[\sinh \frac{n\pi a}{b}\right]^{-1} \frac{2}{b} \int_0^b g(y) \sin \frac{n\pi y}{b}\, dy$$



$$u(x,y) = \sum_{n=1}^{\infty} c_n \sinh\left(\frac{n\pi(a-x)}{b}\right) \sin\left(\frac{n\pi y}{b}\right)$$

$$u(0,y) = \sum_{n=1}^{\infty} c_n \sinh\left(\frac{n\pi a}{b}\right) \sin\left(\frac{n\pi y}{b}\right) = g(y)$$

$$c_n = \left[\sinh\left(\frac{n\pi a}{b}\right)\right]^{-1} \frac{2}{b} \int_0^b g(y) \sin \frac{n\pi y}{b}\, dy$$