Homework 11, due 5/19, 10pm

1. [5pts] Solve the problem for $u(x, y)$

$$\begin{aligned} &\Delta u = 0, \qquad 0 < x < b, \quad 0 < y < d, \\ &u(0, y) = u(b, y) = 0, \quad 0 < y < d \\ &u(x, 0) = h(x), \quad u(x, d) = k(x), \quad 0 < x < b, \end{aligned}$$

derive the general solution as in Lecture 12, including the formulas for the coefficients in general solution.