



PARTIAL DIFFERENTIAL EQUATIONS
SPRING 2023

ASSIGNMENT 7.1
DUE FEBRUARY 28

Exercise 1. Textbook exercise 3.6.3.

Exercise 2. Textbook exercise 3.6.4.

Exercise 3. Repeat exercise 3.6.3, replacing the homogeneous boundary conditions with

$$u_x(0, t) = -1 \quad \text{and} \quad u_x(\pi, t) = 1 \quad \text{for } t > 0.$$

Does the solution tend to a steady state as $t \rightarrow \infty$?

Exercise 4. Repeat exercise 3.6.4, replacing the homogeneous boundary conditions with

$$u_x(0, t) = u_x(1, t) = 1 \quad \text{for } t > 0.$$

Does the solution tend to a steady state as $t \rightarrow \infty$?