Problems Day 50, T 4/23/2024
Topic 25: PDES (2 days)
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Problem 1. Consider the heat equation with boundary conditions:

PDE: $u_t = 3u_{xx}, \ \ 0 \le x \le 1, \ \ t \ge 0$

BC: $u(0,t) = 0, \ \ u(1,t) = 0$

(a) Find all the separated solutions to the PDE.

(b) Find all the modal solutions, i.e., separated solutions to the PDE also satisfying the boundary conditions.

(c) Give the general solution to the PDE which also satisfies the BC.

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