

# PDE Writing Assignment 1

## The assignment

This is your first writing assignment. The problem is essentially exercise #5 on page 66 of our textbook, though I make no reference to the dimension in the problem.

You are expected to type this up in  $\text{\LaTeX}$ . Ideally, you should create a project on Overleaf and share the project with me. Alternatively, you may use a  $\text{\LaTeX}$  package on your own machine and send me the  $\text{\LaTeX}$  source and PDF.

You can view the Overleaf project for this very document here:  
<https://www.overleaf.com/read/cntbcrkfxgcz>.

This assignment is due by next Wednesday, February 24.

## The problem

Show that if the Dirichlet problem

$$\begin{aligned}\Delta u &= \lambda u, \text{ in } \Omega \\ u &= 0, \text{ on } \partial\Omega\end{aligned}$$

then  $\lambda$  must be negative.