

PDE Writing Assignment 0

The assignment

This is your zeroth writing assignment. The mathematics is not particularly hard, once you wrap your head around the symbolism. The problem is essentially exercise #1 on page 64 of our textbook, though the notation is a bit different.

You are expected to type this up in L^AT_EX. Ideally, you should create a project on Overleaf and share the project with me. Alternatively, you may use a L^AT_EXpackage on your own machine and send me the L^AT_EXsource and PDF.

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

This assignment is due by this coming Sunday, February 7.

The problem

Let $u : \mathbb{R}^3 \rightarrow \mathbb{R}$. Verify that

$$\nabla \cdot \nabla u = u_{xx} + u_{yy} + u_{zz}.$$