

---

## MA5460 – Assignment 2

Due Date – None!

**Jaikrishnan Janardhanan**  
jaikrishnan@iitm.ac.in

Indian Institute of Technology Madras  
<https://bit.ly/jkiitm>

---

1. Solve the 1-d wave equation using the Fourier Transform. This is Exercise 3 on page 235 of the textbook.
2. Solve Dirichlet's problem on the infinite strip using Fourier Transform. This is Exercise 4 on page 235 of the textbook.
3. Solve Exercises 8 and 9 from page 265 of the textbook.
4. Solve Exercise 6 on page 272.
5. Find the general form the solution of the equation

$$u'' + 2u' + 5u = f, \quad u(0) = c_0, u'(0) = c_1.$$

6. Let  $\{a_j\}$  and  $\{b_j\}$  be two sequences. Show that either  $a_j$  or  $b_j$  is identically 0 if  $\{a_j\} * \{b_k\}$  is identically 0.
7. Solve Exercise 17 and 18 from page 374 of Fisher's textbook.