Reading
Sections 6.1 through 6.4

Suggested Problems
Section 6.1: Exercises 6, 7, 9.
Section 6.2: Exercises 1, 3, 9, 11, 12.
Section 6.3: Exercise 7, 9, 14, 16.
Section 6.4: Exercise 1, 5, 8.

Problems to be handed in in class on Tuesday, March 20-th

Problem 1 Use the method of Laplace transform to solve the following Boundary Value Problem,
\[ y'' + 2y' + 5y = \cos(t), \quad y(0) = 0, \quad y'(0) = 1. \]

Problem 2 Calculate the Laplace transform of the following discontinuous function
\[ f(t) = \begin{cases} 1, & t \leq 1, \\ t, & 1 < t \leq 2, \\ t^2, & t > 2. \end{cases} \]

Problem 3 Solve the following boundary value problem
\[ y'' + 4y' + 4y = h(t), \quad y(0) = 0, \quad y'(0) = 0, \]
where \( h(t) \) is the function
\[ h(t) = \begin{cases} 1, & \pi \leq t < 2\pi, \\ 0, & 0 \leq t < \pi, \quad t \geq 2\pi. \end{cases} \]