Homework assigned Wednesday, November 10

- Page 462, 1 – 6.
- Page 491, 1 – 5.
- Solve the initial value problems

  (1)

  $$x'' + x' - 2x = \begin{cases} 0, & t < 5; \\ e^{3t}, & 5 \le t. \end{cases} \qquad x(0) = 0,\ x'(0) = 1.$$

  (2)

  $$x'' - x = \begin{cases} 0, & t < 10; \\ 6\cos(t), & 10 \le t. \end{cases} \qquad x(0) = 1,\ x'(0) = 2.$$

Remark: Note that the equation in (1) can be written as

$$x'' + x' - 2x = u(t-5)e^{3t}.$$

You can then use formulas (3a) and (3b) on page 482 of the text to find the Laplace transform of x, and inverse transform of the result.