

Homework set #12

Please, turn in these problems as a separate set.

Use the Laplace transform to solve the following differential equations:

$$\textcircled{\#1} \quad y'' + 6y' + 5y = t - 1 - tU(t-1) \quad y(0) = 1 \quad y'(0) = -1$$

$$\textcircled{\#2} \quad y'' + y' - 2y = t \cdot \cos t \quad y(0) = 0 \quad y'(0) = 0$$

$$\textcircled{\#3} \quad y' - 5y = f(t) = \begin{cases} t^2 & \text{if } 0 \leq t < 1 \\ 0 & \text{if } 1 \leq t \end{cases} \quad y(0) = 1$$