

EEE 225 - Engineering Mathematics I  
(Differential Equations)  
Homework 8

5<sup>th</sup> Dec, 2022

1. Using the Laplace transform, solve the second-order ODE

$$\frac{d^2y}{dt^2} + 10 \frac{dy}{dt} + 25y = 0, \quad y(0) = -3, \quad \dot{y}(0) = 1 \quad (1)$$

2. Using the Laplace transform, solve the second-order ODE

$$\frac{d^2y}{dt^2} + 8 \frac{dy}{dt} + 80y = 0, \quad y(0) = -2, \quad \dot{y}(0) = 1 \quad (2)$$

3. Using the Laplace transform, solve the second-order ODE

$$\frac{d^2y}{dt^2} + 22 \frac{dy}{dt} + 121y = 0, \quad y(0) = 4, \quad \dot{y}(0) = 6 \quad (3)$$