Problem 1. Find general solutions:

$$y'' + 4y' + 3y = 0$$

$$y(t) = C_1 e^{-t} + C_2 e^{-3t}$$

Problem 2. Find general solutions:

$$y'' + 6y' + 10y = 0$$

$$y(t) = C_1 e^{-3t} \cos t + C_2 e^{-3t} \sin t$$

Problem 3. Find general solutions:

$$y'' + 2y' + y = 0$$

$$y(t) = C_1 e^{-t} + C_2 t e^{-t}$$