

1. Solve the initial value problem  $y'' - y' - 6y = 0$ ,  $y(0) = 1$ ,  $y'(0) = -1$ .
2. Solve the initial value problem  $y'' - 2y' + 2y = 0$ ,  $y(0) = 0$ ,  $y'(0) = 1$ .
3. Solve the initial value problem  $y'' - 2y' + 2y = \cos t$ ,  $y(0) = 1$ ,  $y'(0) = 0$ .
4. Solve the initial value problem  $y'' + 2y' + y = 4e^{-t}$ ,  $y(0) = 2$ ,  $y'(0) = -1$ .