

1. Solve the IVP  $y'' + 4y' + 4y = 0$  with  $y(0) = 4$  and  $y'(0) = 1$ .

2. Find the general solution to  $y^{(3)} - 4y^{(2)} + y' + 26y = 0$ .

3. Find a particular solution to  $y'' + 3y' - 10y = 1 + \cos t$ . Hint: first find a family of functions that contains 1 and  $\cos t$  and is closed under differentiation.

4. Find the general solution to  $y'' + 3y' - 10y = 1 + \cos t$ .