Assignment 6

Due by 2023-05-06, 23:59:59 ET.

1. Find the general solution of the differential equation:
   \[ y'' + 4y = 0 \]
   \[ y(0) = 1, \quad y'(0) = 0 \]

2. Find the particular solution of the differential equation:
   \[ y'' + 4y = e^{-2t}, \quad y(0) = 1, \quad y'(0) = 0 \]

3. Solve the differential equation:
   \[ y'' - y = 0 \]
   \[ y(0) = 1, \quad y'(0) = 0 \]

4. Solve the differential equation:
   \[ y'' + 2y' + y = 0 \]
   \[ y(0) = 1, \quad y'(0) = 0 \]

5. Solve the differential equation:
   \[ y'' + y = 0 \]
   \[ y(0) = 1, \quad y'(0) = 0 \]

6. Solve the differential equation:
   \[ y'' - y' - 2y = 0 \]
   \[ y(0) = 1, \quad y'(0) = 0 \]

7. Solve the differential equation:
   \[ y'' - y = 0 \]
   \[ y(0) = 1, \quad y'(0) = 0 \]

8. Using the method of variation of parameters, solve the differential equation:
   \[ y'' + 4y = e^{-2t} \]
   \[ y(0) = 1, \quad y'(0) = 0 \]