MATH 286 PROBLEMS DUE MARCH 7, 2001

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1. Solve:

\[ y'' - 4y' + 4y = 0, \quad y(0) = 1, \quad y'(0) = 3. \]

2. Assuming you know that one solution of

\[ y' + \frac{y'}{t} - \frac{4y}{t^2} = 0 \]

is \( y_1 = t^2 \), find the other fundamental solution.

3. Solve:

\[ y'' - 3y' + 2y = t + 2, \quad y(0) = 1, \quad y'(0) = 2. \]

4. Find the general solution of

\[ y'' - 3y' + 2y = (t + 1)e^t. \]

5. Find the general solution of

\[ y'' + 9y = t \sin(3t). \]

6. Find the general solution of

\[ y'' - 2y' + y = \frac{2e^t}{1 + t^2}. \]