DECA Chapter 4 Test

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1. Find the general solution of

$$y'''' + y''' - 7y'' - y' + 6y = 0$$

Also find the general solution that satisfies the initial conditions

$$y(0) = 1 \qquad y'(0) = 0 \qquad y''(0) = -2 \qquad y'''(0) = -1$$

2. Find the general solution of

$$y^{iv} - y = 0$$

Also find the solution that satisfies the initial conditions

$$y(0) = 7/2 \quad y'(0) = -4 \quad y''(0) = 5/2 \quad y'''(0) = -2$$

3. Find the general solution of

$$y''' - 3y'' + 3y' - y = 4e^t$$

4. Find a particular solution of the equation

$$y^{iv} + 2y'' + y = 3\sin t - 5\cos t$$

5. find a particular solution of

$$y''' - 4y' = t + 3\cos t + e^{-2t}$$

6. Given that $y_1(t)e^t$, $y_2(t) = te^t$, and $y_3(t) = e^{-t}$ are solutions of the homogeneous equation corresponding to

$$y''' - y'' - y' + y = g(t)$$

determind a particular solution in terms of an integral