

### 3.6: Nonhomogeneous ODEs: Variation of Parameters

**Examples:**  $y'' + 4y = 2 \csc(2t)$ ,  $t \in \left(0, \frac{\pi}{2}\right)$

Suppose  $t^2y'' - t(t+2)y' + (t+2)y = 3t^3$ ,  $t > 0$ . Show  $y_1(t) = t$  and  $y_2(t) = te^t$  form a Fundamental Set of solutions to the homogeneous equation, then find a particular solution to the nonhomogeneous equation.