1. Write the general form for the solution.
   a. $y'' + 49y = 0$

   b. $y'' - 5y' = 0$

   c. $y'' - 6y' + 9y = 0$

2. For each example, write the appropriate form for the trial solution when using the method of undetermined coefficients. Do NOT solve for the coefficients. (Refer to your answers above to get started.)

   a. $y'' + 49y = e^{5t} + t^2 + 1$

   b. $y'' + 49y = 6\sin 7t$

   c. $y'' - 5y' = 6\sin 7t$

   d. $y'' - 5y' = e^{5t} + t^2 + 1$

   e. $y'' - 6y' + 9y = e^{5t} + t^2 + 1$

3. Consider the equation $t^2y'' - 2y = 3t^2 - 1$ for $t > 0$. Show that $y_1 = t^2$ and $y_2 = t^{-1}$ solve the associated homogeneous equation. Then use the method of variation of parameters to find a particular solution, and use it to write the general solution.

4. Use the method of variation of parameters to find the general solution of the differential equation $y'' - 4y' + 4y = t^2e^{2t}$.