NAME: _____

EID: _____

M427J Quiz 3

Problem 1. **[2 pts]** Give a judicious guess for the form of a solution to

$$y'' - 6y' + 9y = te^{3t}.$$

Problem 2. **[2 pts]** Write the corresponding complex differential equation to

$$y'' + 4y' = \sin 4t.$$

Additionally, give a judicious guess for the form of a solution of the complex differential equation.

Problem 3. **[6 pts]** Using variation of parameters, find the general solution to

$$y'' - y = t^{100}e^{-t}.$$

Your answer may contain at most one integral that has not been evaluated.