MATH 420 Name: _____
Worksheet 6

1. Using variation of parameters, find the particular solution of the D.E.

$$y'' + 2y' - -8y = 2e^{-2x} - e^{-x}$$

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2. Using reduction of order, find the second solution of the equation.
   $x^2y'' - 7xy' + 16y = 0 \qquad y_1 = x^4$

3. Consider the following D.E.: $y'' - 10y' + 25y = g(x)$
   a. Find the solution for when $g(x) = 0$ (homogeneous equation)

Fill in the guesses for different $g(x)$.

i. $g(x) = 5e^{5x}$ Guess form of $y_p$ _____

Annihilator Function _____

ii. $g(x) = 6x^3e^{6x}$ Guess form of $y_p$ _____

Annihilator Function _____

iii. $g(x) = 4x^2\sin(x)$ Guess form of $y_p$ _____

Annihilator Function _____

iv. $g(x) = e^{2x}\cos(2x)$ Guess form of $y_p$ _____

Annihilator Function _____