Math 274 In-Class **Worksheet 6b**
Section: 4.6 and 4.7

1. Let $t > 0$, consider the equation

$$t^2y'' - 4ty' + 4y = t^5 \sin t.$$

(a) Find a general solution to the corresponding homogeneous equation.

(b) Find a particular solution to the inhomogeneous equation above.

2. Use the Wronskian to verify that the second solution found via Reduction of Order is linearly independent from the first, i.e., vefiry that if $y_1(t) \not\equiv 0$, then $y_1(t)$ and

$$y_2(t) = y_1(t) \int \frac{e^{-\int p(t)dt}}{(y_1(t))^2} dt$$

are linearly independent.

3. For $x > 0$, find a second linearly independent solution to

$$xy'' - y' + (1 - x)y = 0,$$

provided that $y_1 = e^x$ is a solution.