MATH 046 020-QUIZ 8, SPRING 2018

Name: _____

1 (5 pts). We know that $\ddot{x} - 6\dot{x} + 9x = 0$ has two linearly independent solutions as e^{3t} and te^{3t}. Find a particular solution of the nonhomogeneous equation

$$\ddot{x} - 6\dot{x} + 9x = \frac{e^{3t}}{t^2}$$

2 (5 pts). Find the general solution of the equation

$$y'' + \frac{1}{x}y' - \frac{1}{x^2}y = \ln x,$$

provided that two solutions to the associated homogeneous equation are known to be 1 and x^2.