Mathematics 352 Quiz 9

April 19, 2013; 20 minutes   Name: _____

This quiz is *open-note*, but no books or calculators.

1. Use the method of *variation of parameters* to find the general solution of the equation

$$y'' + 4y' + 4y = t^{-2}e^{-2t}, \quad t > 0.$$

2. A mass of $100\,\text{g}$ stretches a spring $5\,\text{cm}$. If the mass is set in motion from its equilibrium position with a downward velocity of $10\,\text{cm/s}$ and if there is no damping, determine the position function $u(t)$ of the mass.