MA 2051 B2013 — Quiz 3

Name:

Section (circle): 9 a.m. (Nathan)   10 a.m. (Ruofan)   11 a.m. (Alex)   noon (Tuan) noon (Hector)   1:00 p.m. (Pi)   3 p.m. (Jesus)

Instructions: Work neatly. Show your work. Do your work on this paper. Use the back if needed. **Justify your answers.**

1. (3 pts) Write a **general solution** of $y'' = -2y' + y$, $y(0) = 1$, $y'(0) = -1$.

2. (4 pts) Find a **general solution** of $4x'' + 8x' + 5x = e^{-2t}$.

3. (3 pts) A 12-kg mass is suspended from a spring. Air resistance and internal friction in the spring resist the motion of the mass with a force whose magnitude is 0.02 times the velocity of the mass. Find the range of spring-constant values for which the mass will *not* oscillate.