1. Find the general solution of the equations
   (a) $y'' - 4y = e^{2x}$
   (b) $y'' - 2y' - 3y = \cos 2x$

2. Solve the initial value problems
   (a) $y'' - 2y' + 4y = \sin x$, with $y(0) = 1$ and $y'(0) = -1$.
   (b) $y'' + y' - 2y = e^x$, with $y(0) = 0$ and $y'(0) = 0$.

3. For each of the following autonomous differential equations, determine the equilibrium points, classify them (stable, unstable or semistable), and sketch several solutions in the $tx$ plane.
   (a) $x' = x^2 (x^2 - 1)$
   (b) $x' = x (1 - x^2)$

Hwk 2, Due Sept 18