Math 33b, Winter 2013, Tonći Antunović - Homework 5

From the textbook solve the problems:
Section 4.3: 12, 14, 20, 22, 28, 34, 36;
Section 4.4: 8, 10, 12, 14, 18;
Section 4.5: 2, 4, 6, 8

And also the problems below:

Problem 1. Solve the initial value problem

$$9y'' - 6y' + y = 0, \quad y(0) = 3, \quad y'(0) = 2.$$

Problem 2. Solve the initial value problem

$$y'' = -16y, \quad y(0) = 1/2, \quad y'(0) = 2.$$

Problem 3. An object is moving on a spring without any resistance. The amplitude is $A = -2$, the phase $\phi = \pi/4$ and period is 4. Find the initial position and the initial velocity of the object (at time $t = 0$).

Problem 4. An object is attached to a spring and is moving in viscous liquid. Assume that the system is overdamped. We pull the object away from the equilibrium position and release it from rest. Show that after it's released, the object will never reach the equilibrium position.