HOMEWORK 4

DUE: WEDNESDAY, JUNE 7

For each of the following problems,

- Find the general solution
- Use the Wronskian to show that the solutions you obtained are fundamental
- Solve the IVP

  (for complex roots express the solutions in the form $Ae^{mt}\cos(\omega t - \phi)$)
- Describe the behavior of the solution as t increases

(1) $y'' + 3y' = 0$,
$y(0) = -2, y'(0) = 1$

(2) $y'' + 2y' - 8y = 0$,
$y(0) = -6, y'(0) = -18$

(3) $y'' - 4y' + 4y = 0$,
$y(0) = 12, y'(0) = -3$

(4) $y'' + 4y' + 5y = 0$,
$y(0) = 1, y'(0) = 0$

(5) $y'' + 4y = 0$,
$y(0) = 0, y'(0) = 1$

(6) $4y'' - y = 0$,
$y(-2) = 1, y'(-2) = -1$

(7) $16y'' - 40y' + 25y = 0$,
$y(0) = 3, y'(0) = -9/4$

(8) $y'' + 14y' + 49y = 0$,
$y(0) = -1, y'(0) = 5$

(9) $y'' + 2y' + 2y = 0$,
$y(\pi/4) = 2, y'(\pi/4) = -2$