1. Find the general solution to the differential equation $y'' + 2y' + 3y = 0$. After finding the solution, describe it in words (is it periodic?; does it go to zero as t increases? etc.) *(10 points)*

2. Find the solution of the IVP $3y'' + y' - 2y = 0$, $y(0) = 1$, $y'(0) = 1$. Describe what happens as $t \to \infty$. *(10 points)*