Math 3280 Worksheet 17:
Linear homogeneous ODEs with constant coefficients

Group members (2 to 4): _____

(1) Solve the initial value problem

$$y^{(4)} + 2y'' + y = 0,$$
$$y(0) = 0,$$
$$y'(0) = 1,$$
$$y''(0) = 2,$$
$$y'''(0) = 3.$$

(2) Solve the initial value problem $y'' - y' = \sin(x)$, $y(0) = 0$, $y'(0) = 1$. (First find the general solution $y = y_c + y_p$, where y_c solves the associated homogeneous version of the ODE.)