

Math 3280 Worksheet 19:
Variation of parameters and introduction to systems of ODEs.

Group members (1 to 3): _____

- (1) Use variation of parameters to find the general solution to $y'' + 4y = \frac{2}{\cos(2x)}$.

- (2) Write the initial value problem $y''' + 2y'' + y' + y = x$, $y(0) = 1$, $y'(0) = 2$, $y''(0) = 1$ as a first-order matrix system with $v = \begin{pmatrix} v_0 \\ v_1 \\ v_2 \end{pmatrix}$ and write the initial data as a vector equation.