Math 54 Quiz 10
April 24, 2014

1. (a) Find the general solution to the homogeneous equation

$$y^{(4)} + 4y''' + 6y'' + 4y' + y = 0.$$

(b) Represent the above equation as a system of linear equations $\mathbf{x}' = A\mathbf{x}$. What is the matrix A obtained in this representation?

2. Use matrix methods to find a general solution of the first-order system

$$\mathbf{x}' = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 0 & 3 \\ 2 & 3 & 0 \end{bmatrix} \mathbf{x}.$$