Math 371: Assignment 1

Due Tuesday January 20, before class.

1. Find the general solutions for the following differential equations:

(a)

$$\frac{dN}{dt} = rN$$

(b)

$$u'' + 5u' + 6 = 0$$

(c)

$$y'' + 4y = 0$$

2. Find the eigenvalues and corresponding eigenvectors for the following matricies

$$\begin{pmatrix} 1 & 1 \\ 3 & -1 \end{pmatrix}, \begin{pmatrix} 2 & 1 \\ 2 & 3 \end{pmatrix}, \begin{pmatrix} -1 & -2 \\ 2 & -1 \end{pmatrix}, \begin{pmatrix} 0 & -2 \\ 2 & 0 \end{pmatrix}$$

- 3. Exercises 1.4.1 and 1.4.3
- 4. Matlab exercises 1 and 3. Please hand in Matlab output for these questions only.