

Homework #12

Due: Wednesday, December 1, 1999

Put the following matrices in the Jordan canonical form. Moreover, in each case, find the appropriate transition matrix to the basis in which the original matrix assumes its Jordan form.

1.

$$A = \begin{pmatrix} 3 & -4 \\ 1 & -1 \end{pmatrix}.$$

2.

$$B = \begin{pmatrix} 1 & 1 & 1 \\ 2 & 1 & -1 \\ 0 & -1 & 1 \end{pmatrix}.$$

HINT: The eigenvalues of are: $-1, 2$.

3.

$$C = \begin{pmatrix} 1 & 1 & 1 \\ 2 & 1 & -1 \\ -3 & 2 & 4 \end{pmatrix}.$$

HINT: The eigenvalues of are all 2 .

4.

$$D = \begin{pmatrix} 5 & -3 & -2 \\ 8 & -5 & -4 \\ -4 & 3 & 3 \end{pmatrix}.$$

HINT: The eigenvalues of are all 1 .