

NAME:

ID:

Prob#1) Let $w = 2.34$

$$A = \begin{bmatrix} 1 & 0 & 2 \\ 3 & w & 1 \\ 4 & 2 & 6 \end{bmatrix}$$

- Let E =reduced-row echelon of A then find E_{33}
- Find the $\det(A)$
- Find inverse of A
- Find all eigenvalues and eigenvectors
- Find the characteristic equation

Prob#2) Solve: $y'' - 4y = 0$

$$y(0) = 4$$

$$y'(0) = 4$$

Then compute $y(2)$

Prob#3) Solve:

$$X' = \begin{bmatrix} 3 & -1 \\ -1 & 3 \end{bmatrix} X + \begin{bmatrix} 4e^{2t} \\ 4e^{4t} \end{bmatrix}, \quad X(0) = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$$

Then compute $X(2)$