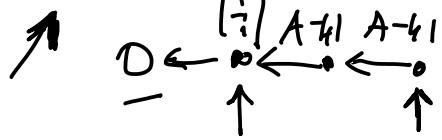
$$\begin{bmatrix} 6 & -1 & -3 \\ -1 & 5 & 2 \\ 2 & -1 & 1 \end{bmatrix} \quad \begin{bmatrix} 2 & -1 & -3 \\ -1 & 1 & 2 \\ 2 & -1 & -3 \end{bmatrix} \to \begin{bmatrix} 1 & -1 & -2 \\ 0 & 1 & 1 \\ -2 & 2 & 4 \\ 2 & -1 & -3 \end{bmatrix} \to \begin{bmatrix} 1 & 0 & -1 \\ 0 & 1 & 1 \end{bmatrix} \rightsquigarrow$$

t



$$\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} t \\ -t \\ t \end{bmatrix} = \begin{bmatrix} 1 \\ -1 \\ 1 \end{bmatrix} t$$

$$\begin{bmatrix} 2 & -1 & -3 \\ -1 & 1 & 2 \\ 2 & -1 & -3 \end{bmatrix} \begin{bmatrix} 2 & -1 & -3 \\ -1 & 1 & 2 \\ 2 & -1 & -3 \end{bmatrix} = \begin{bmatrix} -1 & 0 & 1 \\ 1 & 0 & -1 \\ -1 & 0 & 1 \end{bmatrix} \quad \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix} = \begin{bmatrix} -1 \\ 1 \\ -1 \end{bmatrix} \neq \underline{0}$$

$(A-4I)^2$

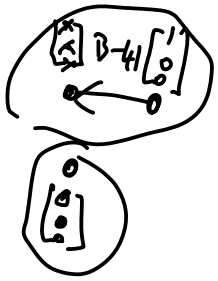
$$\underline{0} \leftarrow \begin{bmatrix} -1 \\ 1 \\ -1 \end{bmatrix} \leftarrow \begin{bmatrix} 2 \\ -1 \\ 2 \end{bmatrix} \xleftarrow{A-4I} \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$$

$$A = CJC^{-1}$$

$$\left[\begin{array}{ccc|ccc} -1 & 2 & 1 & 1 & & \\ 1 & -1 & 0 & & 1 & \\ -1 & 2 & 0 & & & 1 \end{array}\right] \xrightarrow{\text{rref}} \left[\begin{array}{ccc|ccc} 1 & & & & & \\ & 1 & & & \vdots & \\ & & & & & \end{array}\right]$$

C^{-1}

$$C = \begin{bmatrix} -1 & 2 & 1 \\ 1 & -1 & 0 \\ -1 & 2 & 0 \end{bmatrix} \quad J = \begin{bmatrix} 4 & 1 & \\ & 4 & 1 \\ & & 4 \end{bmatrix} \quad C^{-1}$$



$$(B-4I)\begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$$

$$C = \begin{bmatrix} x & 1 & 0 \\ x & 0 & 0 \\ x & 0 & 0 \end{bmatrix} \quad J = \begin{bmatrix} 4 & 1 & \\ & 4 & \\ & & 4 \end{bmatrix} \quad C^{-1} = \begin{bmatrix} & & \end{bmatrix}$$

$$A = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix} \quad e^{3A} = \begin{bmatrix} 1 & 3 & \frac{9}{2} \\ 0 & 1 & 3 \\ 0 & 0 & 1 \end{bmatrix}$$

$$e^A = \begin{bmatrix} 1 & 1 & \frac{1}{2} \\ 0 & 1 & 1 \\ 0 & 0 & 1 \end{bmatrix}$$

$$(e^{3x})' = 3e^{3x} \xrightarrow{x=0} 3$$

$$(e^{3x})'' = 9e^{3x} \to 9$$

2.mo.

$p(x) = ax^2 + bx + c \quad | \cdot c$

$p'(x) = 2ax + b \quad | \cdot b$

$p''(x) = 2a \quad | \cdot 2a$

$e^{3x}|_0 = 1 = c$

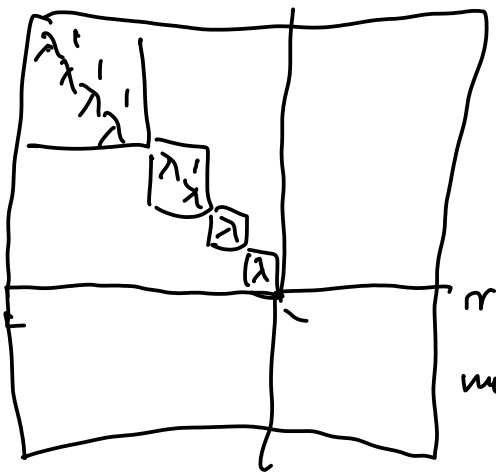
$(e^{3x})'|_0 = 3 = b$

$(e^{3x})''|_0 = 9 = 2a$

$\Big\} \frac{9}{2}x^2 + 3x + 1$

$$\frac{9}{2}A^2 + 3A + 1 = \frac{9}{2}\begin{bmatrix} 0 & 0 & 1 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} + 3\begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix} + \begin{bmatrix} 1 & & \\ & 1 & \\ & & 1 \end{bmatrix}$$

A-λ1 25x25 0 1 2 3 4 5



25 21 19 18 17 17 ....

4 2 1 1 0

2 1 0 1

r 25 21 19 18 17 ←←←←←

null 0 4 6 7 8 0 ←