⊛ $A=\begin{bmatrix}-1 & -1 & 1\\ -1 & -2\alpha-1 & 4\\ -2 & 0 & \alpha\end{bmatrix}$

$$e^{\det A}\cdot\underbrace{\det(e^{A})}_{e^{\operatorname{tr}A}}=e$$

$$\|$$

$$e^{-\alpha-2}$$

$3, \frac{1}{2}$

⊛ $B=\begin{bmatrix}-a+1 & 0\\ -a^2+6a-8 & a-6\end{bmatrix}$

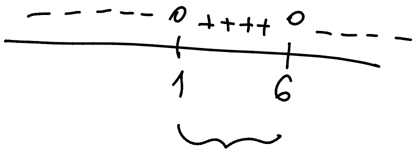
$a\in\mathbb{N}$, паран

$a=?$ тд. $\exists A$ $\longrightarrow$ $\underline{\underline{B}}=\underline{\underline{e}}^{A}\}$

$$\underline{\underline{\det B}}=\det(e^{A})=e^{\operatorname{tr}A}>0$$

$$\|$$

$$(-a+1)(a-6)>0$$



$a\in\{2,\cancel{3},4,\cancel{5}\}$

$$\boxed{a\in\{2,4\}}$$

$a=2$: $B=\begin{bmatrix}-1 & 0\\ 0 & -4\end{bmatrix}=e^{A}$ X (са вежби)

$a=4$: $B=\begin{bmatrix}-3 & 0\\ 0 & -2\end{bmatrix}=e^{A}$ X (слично)

⊛ $A=\begin{bmatrix}2 & 1 & \alpha\\ 0 & \alpha & -1\\ 0 & 1 & 3\end{bmatrix}$

$\alpha=?$, $\det\left(\left(\frac{d}{dx}e^{Ax}\right)\Big|_{x=2}\right)=8e^{12}$

$$\frac{d}{dx}e^{Ax}=Ae^{Ax}$$

$$\uparrow$$

$$\underline{\underline{x=2}}$$

$$\det(A\cdot e^{2A})=8e^{12}$$

$$\underline{\underline{6\alpha+2}}$$

$$\det A \cdot \det(e^{2A}) = 8e^{12}$$

$$\det A \cdot e^{2\operatorname{tr}(A)} = 8e^{12}$$

$$(6\alpha+2)\cdot e^{10+2\alpha} = 8\cdot e^{12}$$

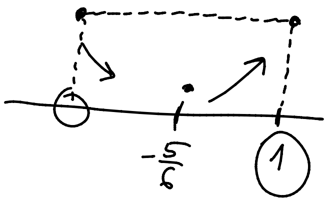
$$\boxed{(6\alpha+2)\cdot e^{2\alpha} = 8e^{2}}$$

$\underline{\underline{\alpha = 1}}$

$$f(\alpha) = (6\alpha+2)\cdot e^{2\alpha}$$

$$f'(\alpha) = 6e^{2\alpha} + (6\alpha+2)\cdot 2e^{2\alpha} =$$

$$= e^{2\alpha}(6+12\alpha+4) = e^{2\alpha}(10+12\alpha)$$



$y(0) = 0$
$y(1) = 5$

$y_p \rightsquigarrow$ **само** услове, не мора јну

$\underline{y_p(x) = 5x}$

$z(x) = y(x) - y_p(x) = y(x) - 5x$

$z(1) = y(1) - 5 = 5 - 5 = 0$
$z(0) = y(0) = 0$
} Хомогени

$\rightsquigarrow$ јна по $z(x)$

$$z'' - z = x$$

$\underline{z(0) = z(1) = 0}$

1) решити хомогену

$$z'' - z = 0$$

$$\boxed{z(x) = c_1 e^{x} + c_2 e^{-x}}$$

2) наћи z_{p_1} и z_{p_2} које зад. кон. проблеме

$u'' - n^2 u = \sin(ax)$

$y'' - a^2 y = \sin(ax)$

$a = 0 : \quad e^{-ax}, e^{ax}$

$a \neq 0 : \quad c_1 x + c_2$

2) наћи z_{p_1} и z_{p_2} које зад. Кош. проблеме

$\downarrow$

$\alpha_1 z(a) + \beta_1 z'(a) = 0$

$\alpha_2 z(b) + \beta_2 z'(b) = 0$

КП 1: $z(a) = \beta_1$

$z'(a) = -\alpha_1$

КП1: $z(b) = \beta_2$

$z'(b) = -\alpha_2$

z_{p_1}, z_{p_2}

3) $G(x,t) = \begin{cases} \dfrac{y_1(t)\, y_2(x)}{W(t)}, & a \leq t \leq x \leq b \\ -- , & -- \end{cases}$

4) $\int_a^b G(x,t) \cdot \underset{\substack{\| \\ t}}{f(t)}\, dt$

$y(4) + 3 \cdot y'(4) = 1$

$y'(5) + 8 = 8y(5) \rightarrow 8y(5) - y'(5) = 8$

$\boxed{y \equiv 1}$