

$$x(t) = \begin{bmatrix} e^{\lambda_1 t} & e^{\lambda_2 t} & \dots & 0 \\ 0 & \dots & e^{\lambda_n t} & 0 \end{bmatrix} x_0$$

$$\lambda = a + jb, \quad j = \sqrt{-1}$$

$$e^{\lambda t} = e^{at} \cdot e^{jbt} = e^{at} \underbrace{[\sin bt]}_{\text{periodik}}$$

Sistem STABIL

jika  $a < 0$

$$e^{\lambda t} \rightarrow 0$$

$$a > 0$$

$$\rightarrow \lim_{t \rightarrow \infty} e^{at} = \infty$$

$$a = 0$$

$$\rightarrow e^{at} = 1 \rightarrow \text{periodik}$$

$$a < 0$$

$$\rightarrow \lim_{t \rightarrow \infty} e^{at} = e^{-\infty} = \underline{\underline{0}}$$