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Nomor 2

hasil transformasi $\rightarrow \hat{A}, \hat{B}, \hat{C}, \hat{D}$

9). $[\hat{P}] = [\hat{B} \quad \hat{A}\hat{B}]$

$$[\hat{P}] = \left[\begin{bmatrix} 1 \\ 4 \end{bmatrix} \quad \begin{bmatrix} 1 & 0 \\ 6 & -1 \end{bmatrix} \begin{bmatrix} 1 \\ 4 \end{bmatrix} \right]$$

$$[\hat{P}] = \left[\begin{bmatrix} 1 \\ 4 \end{bmatrix} \quad \begin{bmatrix} 1 \\ 2 \end{bmatrix} \right]$$

Det(P) ?

$$[\hat{P}] = \begin{bmatrix} 1 & 1 \\ 4 & 2 \end{bmatrix} \rightarrow \text{Matriks Square } [2 \times 2]$$

Maka, sistem completely controllable

• $[\hat{Q}] = [\hat{C}^T \quad \hat{A}^T \hat{C}^T]$

$$[\hat{Q}] = \left[\begin{bmatrix} 0 \\ 0,5 \end{bmatrix} \quad \begin{bmatrix} 1 & 6 \\ 0 & -1 \end{bmatrix} \begin{bmatrix} 0 \\ 0,5 \end{bmatrix} \right]$$

$$[\hat{Q}] = \left[\begin{bmatrix} 0 \\ 0,5 \end{bmatrix} \quad \begin{bmatrix} 3 \\ -0,5 \end{bmatrix} \right]$$

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Det(Q) ?

$$[\hat{Q}] = \begin{bmatrix} 0 & 3 \\ 0,5 & -0,5 \end{bmatrix} \rightarrow \text{Matriks Square } [2 \times 2]$$

Maka, sistem completely observable