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1. Tentukan Rank matriks A berikut :

$$A = \begin{bmatrix} 2 & 3 & 11 & 1 & 4 \\ -1 & 5 & 3 & 2 & -2 \\ 3 & 11 & 25 & 4 & 6 \\ 1 & 21 & 31 & 8 & 2 \\ 4 & 32 & 56 & 12 & 8 \end{bmatrix}$$

$$H_{51}(-2) = \begin{bmatrix} 2 & 3 & 11 & 1 & 4 \\ -1 & 5 & 3 & 2 & -2 \\ 3 & 11 & 25 & 4 & 6 \\ 1 & 21 & 31 & 8 & 2 \\ 0 & 26 & 34 & 10 & 0 \end{bmatrix}$$

$$H_{42}(1) = \begin{bmatrix} 2 & 3 & 11 & 1 & 4 \\ -1 & 5 & 3 & 2 & -2 \\ 3 & 11 & 25 & 4 & 6 \\ 0 & 26 & 34 & 10 & 0 \\ 0 & 26 & 34 & 10 & 0 \end{bmatrix}$$

$$H_{32}(3) = \begin{bmatrix} 2 & 3 & 11 & 1 & 4 \\ -1 & 5 & 3 & 2 & -2 \\ 0 & 26 & 34 & 10 & 0 \\ 0 & 26 & 34 & 10 & 0 \\ 0 & 26 & 34 & 10 & 0 \end{bmatrix}$$

$$H_{12}(2) = \begin{bmatrix} 0 & 13 & 17 & 5 & 0 \\ -1 & 5 & 3 & 2 & -2 \\ 0 & 26 & 34 & 10 & 0 \\ 0 & 26 & 34 & 10 & 0 \\ 0 & 26 & 34 & 10 & 0 \end{bmatrix}$$

$$H_{54}(-1) = \begin{bmatrix} 0 & 13 & 17 & 5 & 0 \\ -1 & 5 & 3 & 2 & -2 \\ 0 & 26 & 34 & 10 & 0 \\ 0 & 26 & 34 & 10 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$H_{43}(-1) = \begin{bmatrix} 0 & 13 & 17 & 5 & 0 \\ -1 & 5 & 3 & 2 & -2 \\ 0 & 26 & 34 & 10 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$H_{31}(-2) = \begin{bmatrix} 0 & 13 & 17 & 5 & 0 \\ -1 & 5 & 3 & 2 & -2 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

Jadi rank matriks

A adalah 2