

Homework for 16.09.2022

1. Find

$$\begin{pmatrix} 0 \\ 1 \\ 2 \\ 3 \end{pmatrix}^+$$

2. Find a full rank decomposition

$$\begin{pmatrix} 1 & 1 & 1 \\ 2 & 2 & 2 \\ 3 & 3 & 3 \\ 1 & 2 & 3 \end{pmatrix}$$

3. Find

$$\begin{pmatrix} 1 & 0 & 0 \\ 1 & 1 & 1 \\ 0 & 1 & 1 \end{pmatrix}^+$$

4. Prove that $\text{Im}(AA^+) = \text{Im}(AA^*) = \text{Im}A$.