1. Give an example of a matrix $A \in M_{3\times3}(\mathbb{R})$ that satisfies

$$\cdot \quad \text{im}(A) \subset \ker(A).$$

Example #1

$$A = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Example #2

$$A = \begin{bmatrix} 0 & 0 & 1 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

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