T/F Two

Mark each statement True or False. Justify each answer.

1. The kernel of a linear transformation is a vector space.

2. Col A is the set of all vectors that can be written as $A\mathbf{x}$ for some $\mathbf{x}$.

3. A null space is a vector space.

4. The column space of an $m \times n$ matrix is in $\mathbb{R}^m$.

5. Col A is the set of all solutions of $A\mathbf{x} = \mathbf{b}$.

6. Nul A is the kernel of the mapping $\mathbf{x} \mapsto A\mathbf{x}$.

7. The range of a linear transformation is a vector space.