

EXERCISES

[REDACTED]

1. Let V be a vector space and let $T \in \mathcal{L}(V)$. Suppose that $T^2 = T$. Show that $\text{Im } T = \ker(T - I)$.

2. Let V be a vector space and let $T \in \mathcal{L}(V)$. Suppose that $T^2 = T$. Show that $\text{Im } T \cap \ker T = \{0\}$.

3. Let V be a vector space and let $T \in \mathcal{L}(V)$. Suppose that $T^2 = T$. Show that $\text{Im } T$ and $\ker T$ are complementary subspaces of V .

[REDACTED]

[REDACTED]

[REDACTED]