## 1 | eigenspace, $E(\lambda,T)$ def

Suppose  $T \in \mathcal{L}(V)$  and  $\lambda \in \mathbb{F}$ . The *eigenspace* of T corresponding to  $\lambda$  denoted  $E(\lambda, T)$ , is defined by

$$E(\lambda, T) = \mathsf{null}(T - \lambda I)$$

In other words,  $E(\lambda,T)$  is the set of all eigenvectors of T corresponding to  $\lambda$ , along with the 0 vector.

## 1.1 | results

1.1.1  $|\lambda|$  is an eigenvalue of T iff  $E(\lambda, T) \neq \{0\}$ 

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