

1 | Axler6.45 orthogonal complement, U^\perp

if U is a subset of V , then the orthogonal complement of U , denoted U^\perp , is the set of all vectors in V that are orthogonal to every vector in U :

$$U^\perp = \{v \in V : \langle v, u \rangle = 0 \forall u \in U\}$$

1.1 | results

1.1.1 | Axler6.46 basic properties

1. complement is a subspace: if U is a subset of V , then U^\perp is a subspace of V
2. $\{0\}^\perp = V$
3. $V^\perp = \{0\}$
4. If U is a subset of V , then $U \cap U^\perp \subseteq \{0\}$