Source:

1 | Definitions

1.1 | Linear Map

A linear map is a function/map from one vector space to another such that it satisfies the properties of additivity and homogeneity. Notationally, a linear map $T \in \mathcal{L}(V, W)$ satisfies $T(a)+T(b) = T(a+b) : a, b \in V$ and $\lambda Ta = T(\lambda a) : \lambda \in \mathbb{F}, a \in V$

1.2 | Null Space

The null space of a linear map is the space of vectors that are sent to 0 by T, aka $\{v : v \in V \land Tv = 0\}$