Vector Spaces

Tuesday, May 30, 2023 9:40 PM

Vector Space = Set of Vectors (col matrix) $\begin{pmatrix}1\\2\\3\end{pmatrix}$ 3 × 1 Vector + Set of Scalars (real number)

Closed under Vector addition and Scalar multiplication ✓

A B (3 × 1) matrix

(2, 3) $W = 2.A + 3.B$

$= 2.\begin{pmatrix}a_1\\a_2\\a_3\end{pmatrix} + 3\begin{pmatrix}b_1\\b_2\\b_3\end{pmatrix}$

$= \begin{pmatrix}2a_1+3b_1\\2a_2+3b_2\\2a_3+3b_3\end{pmatrix}$ (3×1) Vector

Example Set of Vector ~ All (3 × 1) matrix

Set of scalars ~ All real number