Column space

A a matrix $(m \times n)$

$[\vec{v_1}, \vec{v_2} \dots \vec{v_n}]$ → column vectors of A

$\vec{v_1}, \vec{v_2} \dots \vec{v_n} \in \mathbb{R}^m$

$C(A)$ = column space of matrix A

1) span (A)

span $(\vec{v_1}, \vec{v_2} \dots \vec{v_n})$

2) $C(A)$ is a valid subspace

Column basis

$= \text{span}(\vec{v_1} \dots \vec{v_n})$

when $\vec{v_1}, \vec{v_2}, \dots \vec{v_n}$ are linearly independent

If they are linearly dependent we find the smaller set of v's that are linearly independent