

# Fundamental Subspaces

## Row $A$

The space spanned by the rows of matrix.

### Properties

- The basis for Row  $A$  is given by the pivot rows of  $A$ .
- $\dim(\text{Row } A) = \dim(\text{Col } A)$
- $\text{Row } A = \text{Col } A^T$

## Col $A$

Look [Column Space and Null Space](#) to learn more.

## Null $A$

Look [Column Space and Null Space](#) to learn more.

### Properties

- $(\text{Row } A)^\perp = \text{Null } A$
- $(\text{Null } A)^\perp = \text{Row } A$

## Null $A^T$

### Properties

- $(\text{Col } A)^\perp = \text{Null } A^T$
- $(\text{Null } A^T)^\perp = \text{Col } A$