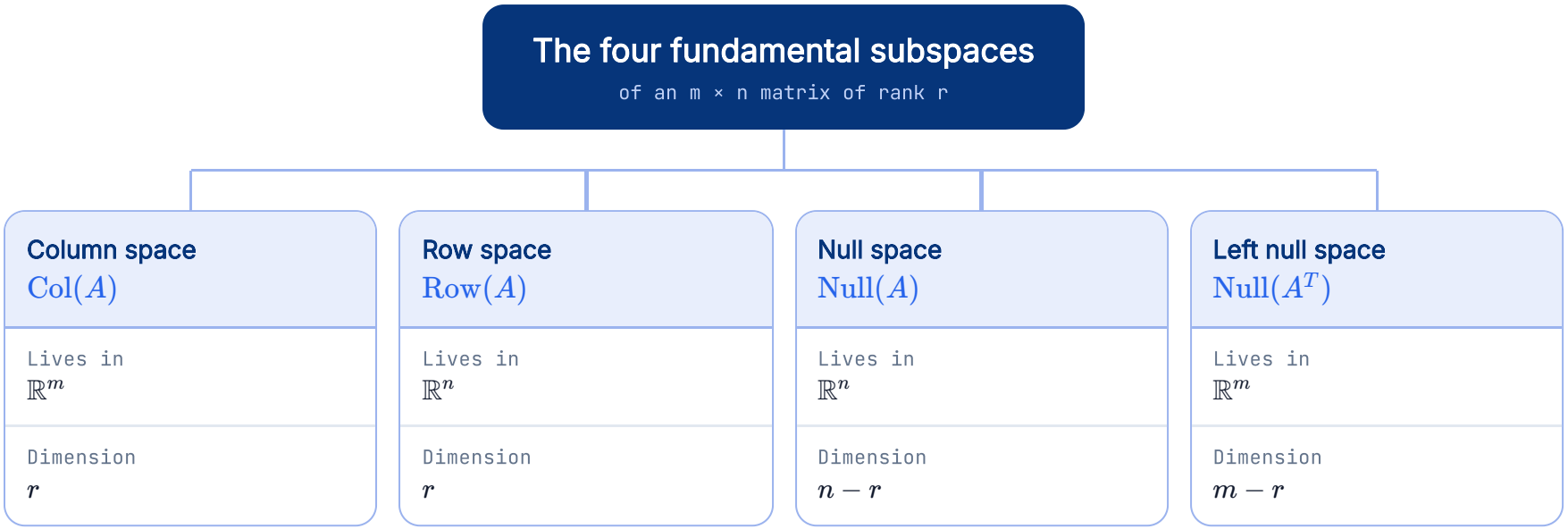
BEFORE YOU READ

Four subspaces from one matrix

Every $m \times n$ matrix A of rank r carries four subspaces: two live in $\mathbb{R}^n$, two in $\mathbb{R}^m$.



TAKEAWAY

They come in complementary pairs

The row space and the null space of A complete each other in $\mathbb{R}^n$; the column space and the null space of A^T complete each other in $\mathbb{R}^m$.