

$$A \vec{x} = \vec{b}$$

$$\left( \vec{a}_1 \quad \dots \quad \vec{a}_n \right) \begin{pmatrix} x_1 \\ \vdots \\ x_n \end{pmatrix} = x_1 \vec{a}_1 + x_2 \vec{a}_2 + \dots + x_n \vec{a}_n = \vec{b}$$

$$\left( \begin{array}{|c|} \hline 1 \\ \hline 4 \\ \hline \end{array} \begin{array}{|c|} \hline 2 \\ \hline 5 \\ \hline \end{array} \begin{array}{|c|} \hline 3 \\ \hline 6 \\ \hline \end{array} \right) \begin{pmatrix} -1 \\ -2 \\ 3 \end{pmatrix} = (-1) \begin{pmatrix} 1 \\ 4 \end{pmatrix} + (-2) \begin{pmatrix} 2 \\ 5 \end{pmatrix} + 3 \begin{pmatrix} 3 \\ 6 \end{pmatrix}$$

$\mathbb{R}^n$  : the set of all vectors w/ length  $n$

