

Section 3.4

Two matrices

Column Vector is a nx1 matrix

$$\begin{bmatrix} 10 & 0 & -15 \\ -5 & 25 & 30 \end{bmatrix} + \begin{bmatrix} 6 & -9 & -3 \\ -21 & -3 & -15 \end{bmatrix}$$

Matrix Multiplication

Rules of Matrix Algebra

$$\begin{bmatrix} 1 & 0 & -3 \\ 3 & 2 & 4 \\ 2 & -3 & 5 \end{bmatrix} \begin{bmatrix} 7 & -4 & 3 \\ 1 & 5 & -2 \\ 0 & 3 & 9 \end{bmatrix}$$

$$\begin{bmatrix} 7 & -4 & 3 \\ 1 & 5 & -2 \\ 0 & 3 & 9 \end{bmatrix} \begin{bmatrix} 1 & 0 & -3 \\ 3 & 2 & 4 \\ 2 & -3 & 5 \end{bmatrix}$$

$$\begin{bmatrix} 2 & 1 \\ 4 & 3 \end{bmatrix} \begin{bmatrix} -1 & 0 & 4 \\ 3 & -2 & 5 \end{bmatrix}$$

$$\begin{aligned} x_1 - 3x_2 + 6x_4 &= 0 \\ x_3 + 9x_4 &= 0 \end{aligned}$$

$$A = \begin{bmatrix} 3 & 4 \\ 5 & 7 \end{bmatrix} \quad B = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \quad I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$