



## Special matrices

Zero matrix:  $m \times n$

$$O = \begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$$

$$AX = O$$

$$m \times n \cdot n \times 1 = m \times 1$$

Identity matrix:  $n \times n$

$$AI = A = IA$$

$$I = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

Diagonal matrix

$$D = \begin{pmatrix} d_1 & 0 & 0 \\ 0 & d_2 & 0 \\ 0 & 0 & d_3 \end{pmatrix}$$

Banded matrix  
eg. tridiagonal

$$\begin{pmatrix} d_1 & a_1 & 0 \\ b_1 & d_2 & a_2 \\ 0 & b_2 & d_3 \end{pmatrix}$$

Upper triangular matrix

$$U = \begin{pmatrix} a & b & c \\ 0 & d & e \\ 0 & 0 & f \end{pmatrix}$$

$$L = \begin{pmatrix} a & 0 & 0 \\ b & c & 0 \\ d & e & f \end{pmatrix}$$