Special Matrices

Zero matrix: $m \times n = 0 = \begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix} = \begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix} = \dots$

Identity matrix: $n \times n$

$$AI = A = IA$$

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

Diagonal matrix:

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

Triangular lower matrix:

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

Banded matrix:

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

Triangular upper matrix:

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