

Determinant

$$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

$$|A| = ad - bc$$

$$A = \begin{bmatrix} 9 & 7 \\ 3 & 2 \end{bmatrix}$$

$$9 \times 2 - 7 \times 3 = -3$$

Inverse Matrix

$$\begin{bmatrix} a & b \\ c & d \end{bmatrix}^{-1} = \frac{1}{ad - bc} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

$$\begin{bmatrix} 9 & 7 \\ 3 & 2 \end{bmatrix}^{-1} = \frac{1}{(9 \times 2) - (7 \times 3)} \begin{bmatrix} 2 & -7 \\ -3 & 9 \end{bmatrix}$$

$$\frac{1}{-3} \begin{bmatrix} 2 & -7 \\ -3 & 9 \end{bmatrix}$$

$$= \begin{bmatrix} 2/-3 & -7/-3 \\ -3/-3 & 9/-3 \end{bmatrix} = \begin{bmatrix} -2/3 & 7/3 \\ 1 & -3 \end{bmatrix}$$

$$= \begin{bmatrix} -0.66 & 2.33 \\ 1 & -3 \end{bmatrix}$$