

Determinant and Adjoint of Matrix

Determinant of matrix

Let's start with 2-by-2 matrix

$$A = \begin{bmatrix} -4 & 2 \\ 3 & 7 \end{bmatrix}$$

$$|A| = \begin{vmatrix} -4 & 2 \\ 3 & 7 \end{vmatrix}$$

$$= (-4)(7) - (3)(2)$$

$$= -28 - 6$$

$$\boxed{|A| = -34}$$

Example # 2

$$B = \begin{bmatrix} -6 & -2 \\ -4 & -1 \end{bmatrix}$$

$$|B| = \begin{vmatrix} -6 & -2 \\ -4 & -1 \end{vmatrix}$$

$$= (-6)(-1) - (-4)(-2)$$

$$\begin{aligned}
 |B| &= (-6)(-1) - (-2)(-4) \\
 &= (+6) - (+8) \\
 &= 6 - 8
 \end{aligned}$$

$$|B| = -2$$

Now, we will assume a matrix with order 2-by-2 for ~~Determinant~~ Adjoint.

$$A = \begin{bmatrix} -4 & 2 \\ -3 & -6 \end{bmatrix}$$

$$\text{Adj } A = \begin{bmatrix} -6 & -2 \\ 3 & -4 \end{bmatrix} \checkmark$$

Example 2

$$B = \begin{bmatrix} 2 & -1 \\ 3 & 6 \end{bmatrix}$$

$$\text{Adj } B = \begin{bmatrix} 6 & 1 \\ -3 & 2 \end{bmatrix}$$