* Singular & Non singular matrix :

=> The square matrix A is said to singular if $|A| = 0$

=> The square matrix A is said to non-singular if $|A| \neq 0$

=> let A and B be two square matrix then

$$|AB| = |A||B|$$

=> For a square matrix A of order n,

$$|adjA| = |A|^{n-1}$$

=> Inverse of matrix :

Let A be a non-singular matrix of order n then A^{-1} is obtained by

$$A^{-1} = \frac{adjA}{|A|}$$

=> A square matrix A is invertible iff A is non singular matrix.

IMP(IM)

EX : If A is a square matrix with $|A| = 8$ then find the value of $|AA'|$

=> $|AA'| = |A||A'|$ $\because |A| = |A'|$

$= 8 \times 8$

$= 64$

EX : If A is an invertible matrix of order 2 then find $|A^{-1}|$

=> $AA^{-1} = I$ $\because |I| = 1$

$|AA^{-1}| = |I|$

$|A||A^{-1}| = 1$

$\therefore |A^{-1}| = \frac{1}{|A|}$

EX : If $|A| = 8$ is a square matrix of order 3 then find $|adjA|$

=> $|adjA| = |A|^{n-1}$

$= 8^{3-1}$

$= 8^2$

$|adjA| = 64$.