Inverse of a matrix (Reciprocal matrix)

- If A, B are square matrices of order n and $|A| \neq 0$,

  $AB = I_n = BA$, then B is multiplicative inverse of A i.e. $B = A^{-1}$

  $\Rightarrow AA^{-1} = I = A^{-1}A$

  To find inverse of a matrix :

  We know , $A\, adj\, (A) = |A|I_n = adj\, A \cdot A$

  $\Rightarrow A \cdot \left(\frac{adj\, A}{|A|}\right) = I_n = \left(\frac{adj\, A}{|A|}\right) \cdot A$

  $\Rightarrow A \cdot A^{-1} = I_n = A^{-1} \cdot A \Rightarrow A^{-1} = \frac{adj\, (A)}{|A|}$

  Note: For a matrix to be invertible, it must be non$-$singular .