Formulas.

→ $AA^{-1} = I_n = A^{-1}A$. [I_n represent identity matrix of size n]

→ $|A^{-1}| = \frac{1}{|A|}$ [$|A|$ → represent determinant of A]

→ $(A^{-1})^{-1} = A$

→ $A.\,\text{adjoint}(A) = |A| I_n = (\text{adjoint}(A))A$

→ $(AB)^{-1} = B^{-1}A^{-1}$

→ $(ABC \text{----})^{-1} = \text{----}\, C^{-1}B^{-1}A^{-1}$

→ $\text{adjoint}(KA) = K^{n-1}\,\text{adjoint}A$ where n is order of matrix

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→ adjoint $(adj(A)) = |A|^{n-2} \cdot A$. Here adj represent adjoint

→ $\det(adj\,A) = (\det A)^{n-1}$. Here det represent determinant

→ $\det(adj(adj(A))) = (\det A)^{(n-1)^2}$

→ $(A^T)^{-1} = (A^{-1})^T$ where A^T represent transpose of A

→ $(A^k)^{-1} = (A^{-1})^k$, $k \in N$

→ $adj\,A^{-1} = (adj\,A)^{-1}$

→ $A^{-1} = \frac{adj\,A}{|A|}$

→ $(kA)^{-1} = \frac{A^{-1}}{k}$ where k is scalar.