properties of the determinant

Let A and B be $n \times n$ matrices and let k be a scalar

- $det(kA) = k^n \cdot det(A)$
- $det(A^T) = det(A)$
- $det(AB) = det(A)det(B)$
- If A is invertible then

$$det(A^{-1}) = \frac{1}{det(A)}$$

- A matrix A is invertible if and only if $det(A) \neq 0$
- A square matrix that has $det(A) = 0$ is called singular and is not invertible

inverse of a matrix