0.1 Properties of determinants

0.1.1 Identity

$\det I = 1$

0.1.2 Multiplication

$\det(AB) = \det A \det B$

0.1.3 Inverse

$\det(M^{-1}) = \dfrac{1}{\det M}$

We know this because:

$\det(MM^{-1}) = \det I = 1$

$\det M \det M^{-1} = 1$

$\det(M^{-1}) = \dfrac{1}{\det M}$

0.1.4 Complex cojugate

$\det(M^*) = \overline{\det M}$

0.1.5 Transpose

$\det(M^T) = \det M$

0.1.6 Addition

$\det(A + B) = \det A + \det B$

0.1.7 Scalar multiplication

$\det cM = c^n \det M$

0.1.8 Determinants and eigenvalues

The determinant is equal to the product of the eigenvalues.