



Definition

A (real) matrix polynomial of degree d is a function $p : \mathbf{R}^{n \times n} \rightarrow \mathbf{R}^{n \times n}$ for which there exists a finite sequence $(c_0, c_1, \dots, c_{d-1}, c_d) \in \mathbf{R}^{d+1}$ satisfying,

$$p(A) = c_0 I + c_1 A^1 + c_2 A^2 + \cdots + c_d A^d,$$

for all $A \in \mathbf{R}^{n \times n}$.

