



Why

The real polynomials are differentiable on all of \mathbf{R} , and have simple derivatives.

Results

Proposition 1. *Suppose $p : \mathbf{R} \rightarrow \mathbf{R}$ is a real polynomial with coefficients $c_0, \dots, c_1, \dots, c_m$. Then p is differentiable and its derivative $p' : \mathbf{R} \rightarrow \mathbf{R}$ satisfies*

$$p'(x) = c_1 + 2c_2x + 3c_3x^2 + \cdots + mc_mx^{m-1}$$

