MATH-UA 129: Lecture Three

James Pagan, October 2023

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1 Taylor Exansion of Multivariable Functions

The nth **Taylor expansion** of a multivariable function is an n-degree polynomial expressed in terms of the function's partial derivatives at a single point. The Taylor expansion approximates f near the point with a small error. The univariate case of Taylor's Theorem is covered extensively in the Analysis notebook.

In $\mathbb{R}^n$,