

Newton's and Quasi-Newton Methods

Axel Böhm

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1 Introduction

1-dimensional case: Newton-Raphson method

Objective: Find zero of differentiable $f : \mathbb{R} \rightarrow \mathbb{R}$.

Strategy: Solve

$$f(x_k) + f'(x_k)(x - x_k) = 0.$$

Method: Gives

$$x_{k+1} = x_k - \frac{f(x_k)}{f'(x_k)}$$

