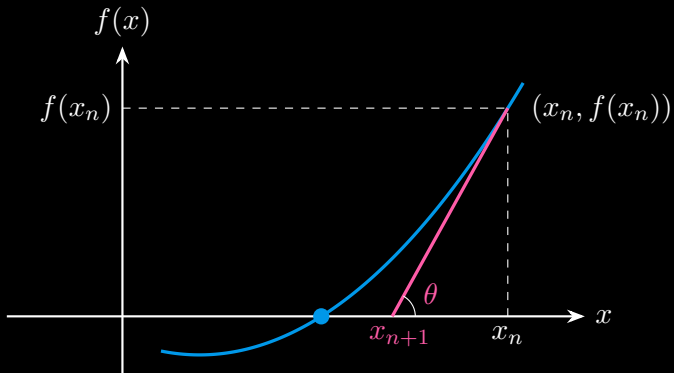


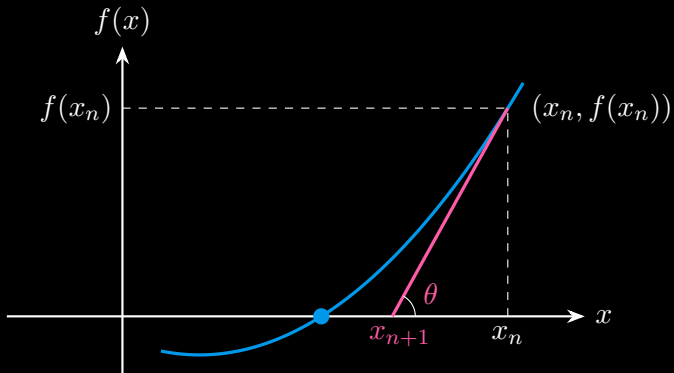
Intuitive Understanding of Newton's Method

$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{0 - f(x_n)}{x_{n+1} - x_n} = f'(x_n)$$



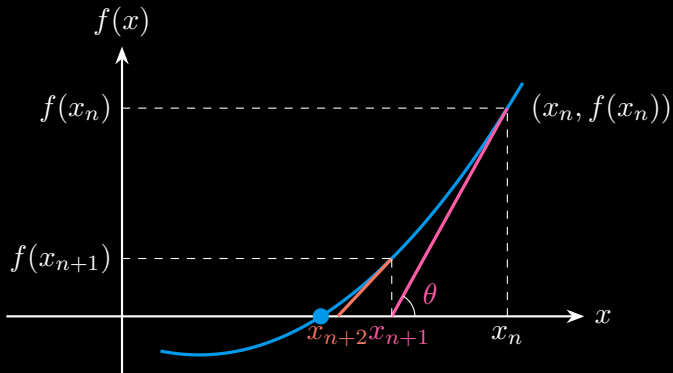
Intuitive Understanding of Newton's Method

$$x_{n+1} - x_n = -\frac{f(x_n)}{f'(x_n)} \quad \Rightarrow \quad x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$$



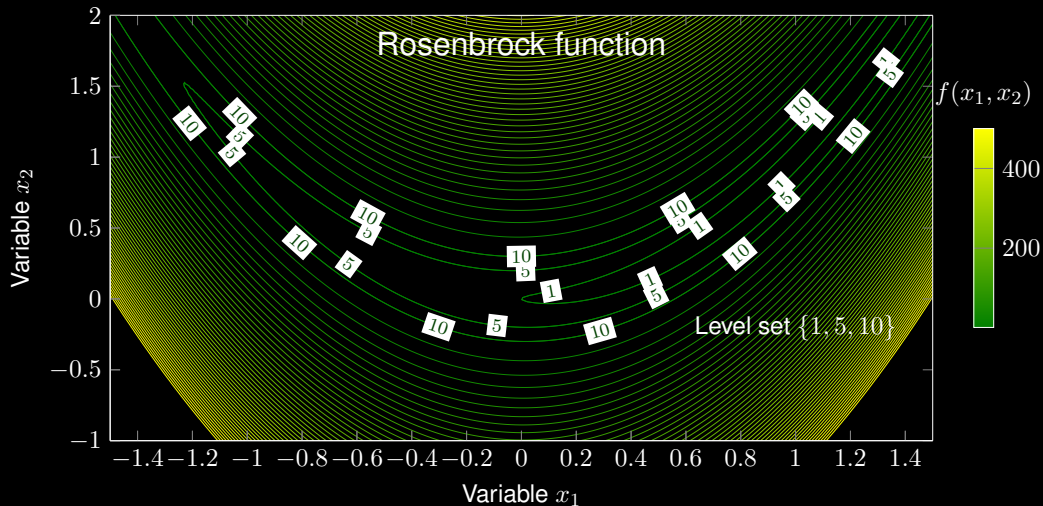
Intuitive Understanding of Newton's Method

$$x_{n+2} = x_{n+1} - \frac{f(x_{n+1})}{f'(x_{n+1})}$$



Unconstrained Nonlinear Optimization

$$\min_{x_1, x_2} f(x_1, x_2) = (1 - x_1)^2 + 100(x_2 - x_1^2)^2$$



Unconstrained Nonlinear Optimization

$$\min_{x_1, x_2} f(x_1, x_2) = (1 - x_1)^2 + 100(x_2 - x_1^2)^2$$

