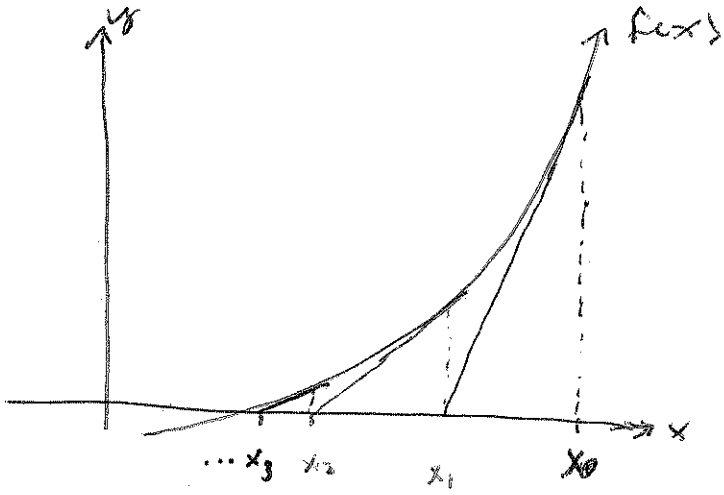
4.8: Newton's Method.

Mario Polo video



step by step process where we move from one guess to another.

"Iterative Process"

Derivation.

start w/ x_0

show $x_1 = x_0 - \frac{f(x_0)}{f'(x_0)}$

x_0

$x_1 = x_0 - \frac{f(x_0)}{f'(x_0)}$

$x_2 = x_1 - \frac{f(x_1)}{f'(x_1)}$

⋮

ex: use the calculator and tangent line command to find the zero of $y = x^3 + e^x$

show STORE COMMAND.

ex: Explore $y = xe^{-x^2}$ w/ $x_0 = 1$, $x_0 = \frac{1}{2}$, $x_0 = 0.4$

diverges ↓ | oscillates ↓ | converges ↓

ex: Quadratic starting @ the vertex.