Homework 2

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Problem 1

Problem 2 Derive a one-dimensional minimization algorithm based on quadratic fit that only requires objective function values (but no derivatives). Specifically, derive an algorithm that computes x_{k+1} based on x_k, x_{k-1}, x_{k-2}, and $f(x_k), f(x_{k-1}), f(x_{k-2})$. Hint: To simplify notation, used $\delta_{i,j} = x_{k-i} - x_{k-j}$ and $\sigma_{i,j} = (x_{k-i})^2 - (x_{k-j})^2$

Bonus: implement your algorithm as a MATLAB script and apply it to the numerical problems, above. Note that you will needthree points to initialize the algorithm.