Numerical Analysis Project 1

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Positive Solutions of X

<u>Claim:</u> There is only one positive solution for x.
<u>Proof:</u>

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Fixed Point Iteration

Finding $g(x)$

Case Testing

Choosing α

<u>Claim:</u> If $\alpha = \sum_{j=1}^{M} k_j n_j$, the FPI always converges.
<u>Proof:</u>

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Newton's Method

Test One

Test Two

Test Three

Algorithm Comparison

Output Evaluation

Asymptotic Error Constant Calculation

Test Case Results

Conclusions and Preferred Algorithm