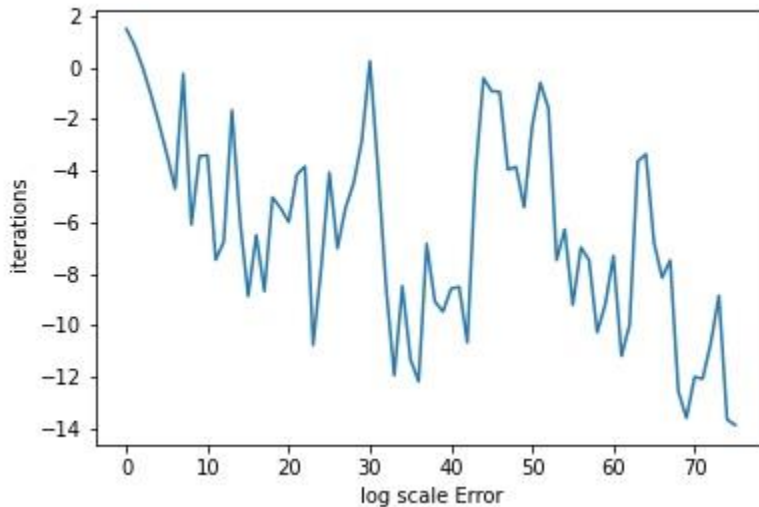


Assignment 3

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1.

Plot of $\log(\text{Error})$ vs iterations for $n = 20$. (base is natural log)



The following table shows the number of iterations to converge for different n values

N Value	N = 5	N = 8	N = 12	N = 20
Iterations to converge	6	19	38	75

2. The below table shows function values vs iteration numbers for the given algorithms

Iterations	Steepest Descent	DFP with exact line search	DFP with inexact line search
1	33.831601	33.831601	1190.063477
2	0.064286	0.027304	1139.582732
3	0.000140	0.000018	352.843322
4	0.000000	0.000000	133.920559
5	0.000000	0.000000	122.804933
6	0.000000	0.000000	26.225157