Ist Iteration

Applying Fitness Function

iteration 1

Probability values Applying weight function and inversely proportionate to sorting in increasing order Initial Population of fitness value fitness values $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: -6.21194106e+00\:\: 4.48658051e+02\:\: 3.82190689e+02\:\: 8.06792169e+05\:\: -6.01876916e+05\:\: -1.25158557e+07\:\: 3.48409638e+08\:\: 4.16149250e+11\:\: -6.72736962e+12] \end{array}$ 0 9 0.181818 $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: -5.96220780e+00\:\: 4.93390314e+02\:\: \\ 3.82190689e+02\:\: 8.06792169e+05\:\: -6.01876916e+05\:\: -1.25158557e+07\:\: \\ 3.48409638e+08\:\: 4.16149250e+11\:\: -6.72736962e+12] \end{array}$ $\begin{array}{l} [\ 0.000000000+00\ \ 1.24031745\text{e-}01\ \ \text{-}6.21194106\text{e}+00\ \ 4.48658051\text{e-}02\ \ 3.82190689\text{e-}02\ \ 8.06792169\text{e-}05\ \ \text{-}6.01876916\text{e-}05\ \ \text{-}1.25158557\text{e-}07\ \ 3.48409638\text{e-}08\ \ 4.16149250\text{e-}11\ \ \text{-}6.72736962\text{e-}12] \end{array}$ Fitness function 1 0 0.163636 After sorting $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: -5.96220780e+00\:\: 4.93390314e+02\:\: \\ 3.82190689e+02\:\: 8.06792169e+05\:\: -6.01876916e+05\:\: -1.25158557e+07\:\: \\ 3.48409638e+08\:\: 4.16149250e+11\:\: -6.72736962e+12] \end{array}$ $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: \text{-}\: 5.96220780e+00\:\: 4.87259634e+02\:\: 3.82190689e+02\:\: 8.06792169e+05\:\: \text{-}\: 6.01876916e+05\:\: \text{-}\: 1.25158557e+07\:\: 3.48409638e+08\:\: 4.16149250e+11\:\: \text{-}\: 6.72736962e+12] \end{array}$ 2 3 0.145454 $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: \text{-}\: 5.96220780e+00\:\: 4.87259634e+02\:\: 3.82190689e+02\:\: 8.06792169e+05\:\: \text{-}\: 6.01876916e+05\:\: \text{-}\: 1.25158557e+07\:\: 3.48409638e+08\:\: 4.16149250e+11\:\: \text{-}\: 6.72736962e+12] \end{array}$ 3 1 0.127272 Fitness $\begin{bmatrix} 0.00000000e+00 & 1.24031745e+01 & -5.36269705e+00 & 4.93390314e+02 \\ 3.82190689e+02 & 8.06792169e+05 & -6.01876916e+05 & -1.25158557e+07 \\ 3.48409638e+08 & 4.16149250e+11 & -6.72736962e+12 \end{bmatrix}$ $\begin{array}{l} [\ 0.000000000e+00\ \ 1.24031745e+01\ \ -5.96220780e+00\ \ 4.93390314e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ function 4 2 0.109090 $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: -6.21194106e+00\:\: 4.48658051e+02\:\: 3.18778503e+02\:\: 8.06792169e+05\:\: -6.01876916e+05\:\: -1.25158557e+07\:\: 3.48409638e+08\:\: 4.16149250e+11\:\: -6.72736962e+12] \end{array}$ $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -5.96220780e+00\ \ 4.93390314e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ 5 8 0.090909 $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: -6.21194106e+00\:\: 4.48658051e+02\:\: 3.82190689e+02\:\: 8.06792169e+05\:\: -6.01876916e+05\:\: -1.25158557e+07\:\: 3.48409638e+08\:\: 4.64347943e+11\:\: -6.73242018e+12] \end{array}$ 6 7 Fitness 0.072727 function $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -6.46008195e+00\ \ 4.93390314e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ 7 4 After sorting 0.054545 $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: -5.96220780e+00\:\: 4.93390314e+02\:\: \\ 3.82190689e+02\:\: 8.06792169e+05\:\: -6.01876916e+05\:\: -1.25158557e+07\:\: \\ 3.48409638e+08\:\: 4.16149250e+11\:\: -6.72736962e+12] \end{array}$ 8 6 0.036363 [0.00000000e+00 1.24031745e-01 -5.96220780e+00 4.93390314e-02 3.82190689e-02 7.59347397e-05 -6.01876916e-05 -1.25158557e-07 [0.00000000e+00 1.24031745e-01 -6.21194106e+00 4.48658051e-02 3.18778503e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 9 5 0.0181818 3.48409638e-08 4.16149250e-11 -6.72736962e-12] 3.48409638e-08 4.16149250e-11 -6.72736962e-12]

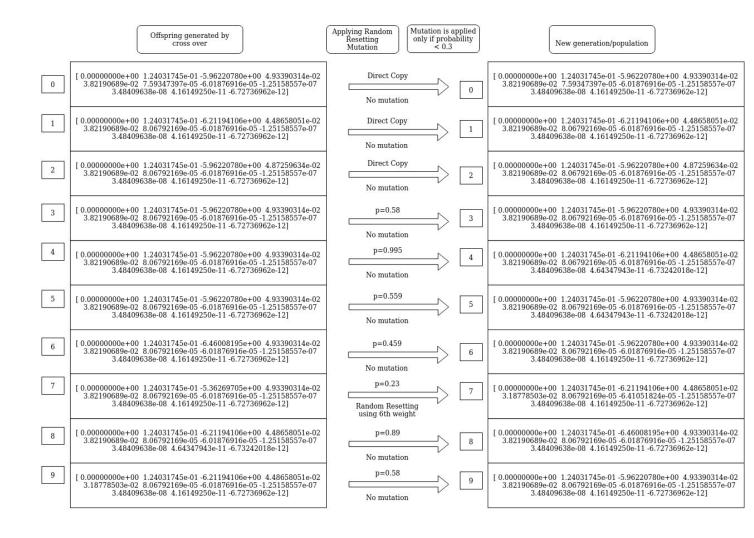
Ist Iteration:

Now applying One-Point Cross-over

One-Point Cross-over Probability values Solutions sorted in increasing order inversely oportionate to fitness Offspring Parents $\begin{bmatrix} 0.00000000\text{e}+00 & 1.24031745\text{e}-01 & -5.96220780\text{e}+00 & 4.93390314\text{e}-02 \\ 3.82190689\text{e}-02 & 7.59347397\text{e}-05 & -6.01876916\text{e}-05 & -1.25158557\text{e}-07 \\ 3.48409638\text{e}-08 & 4.16149250\text{e}-11 & -6.72736962\text{e}-12 \end{bmatrix}$ $\begin{bmatrix} 0.000000000+00 & 1.24031745e-01 & -5.96220780e+00 & 4.93390314e-02 \\ 3.82190689e-02 & 7.59347397e-05 & -6.01876916e-05 & -1.25158557e-07 \\ 3.48409638e-08 & 4.16149250e-11 & -6.72736962e-12 \end{bmatrix}$ 0.181818 Copy directly 0 0 0.163636 1 Copy directly 1 0.145454 2 Copy directly 2 0.127272 3 2,9 4 Cross Over 0.109090 6,5 Parent selection proportional to prob value $\begin{bmatrix} 0.00000000e+00 & 1.24031745e-01 \cdot 5.96220780e+00 & 4.93390314e-02 \\ 3.82190689e-02 & 8.06792169e-05 \cdot 6.01876916e-05 \cdot 1.25158557e-07 \\ 3.48409638e-08 & 4.16149250e-11 \cdot 6.72736962e-12 \end{bmatrix}$ $\begin{bmatrix} 0.00000000e+00 & 1.24031745e-01 & -5.96220780e+00 & 4.93390314e-02 \\ 3.82190689e-02 & 8.06792169e-05 & -6.01876916e-05 & -1.25158557e-07 \\ 3.48409638e-08 & 4.16149250e-11 & -6.72736962e-12 \end{bmatrix}$ 5 0.090909 6,8 $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: -6.46008195e+00\:\: 4.93390314e+02\:\: 3.82190689e+02\:\: 8.06792169e+05\:\: -6.01876916e+05\:\: -1.25158557e+07\:\: 3.48409638e+08\:\: 4.16149250e+11\:\: -6.72736962e+12] \end{array}$ 0.072727 6 Cross Over 4,1 Parent selection proportional to prob value $\begin{bmatrix} 0.00000000\text{e}+00 & 1.24031745\text{e}-01 \text{-}5.36269705\text{e}+00 & 4.93390314\text{e}-02 \\ 3.82190689\text{e}-02 & 8.06792169\text{e}-05 \text{-}6.01876916\text{e}-05 \text{-}1.25158557\text{e}-07 \\ 3.48409638\text{e}-08 & 4.16149250\text{e}-11 \text{-}6.72736962\text{e}-12 \end{bmatrix}$ 7 0.054545 0,5 $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -6.21194106e+00\ \ 4.48658051e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.64347943e+11\ \ -6.73242018e+12] \end{array}$ 0.036363 8 4,7 Parent selection proportional to prob value 0.0181818 9 2.1

Ist Iteration:

Now applying Random Resetting Mutation



2nd Iteration

Applying Fitness Function

Probability values Applying weight function and sorting in increasing order of fitness value inversely proportionate to Initial Population 0.181818 0 0 $\begin{array}{l} [\,0.00000000e+00\ \ 1.24031745e+01\ \ -6.21194106e+00\ \ 4.48658051e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: -6.21194106e+00\:\: 4.48658051e+02\:\: 3.82190689e+02\:\: 8.06792169e+05\:\: -6.01876916e+05\:\: -1.25158557e+07\:\: 3.48409638e+08\:\: 4.16149250e+11\:\: -6.72736962e+12] \end{array}$ 0.163636 1 1 Fitness function $\begin{bmatrix} 0.00000000e+00 & 1.24031745e+01 & -5.96220780e+00 & 4.87259634e+02 \\ 3.82190689e+02 & 8.06792169e+05 & -6.01876916e+05 & -1.25158557e+07 \\ 3.48409638e+08 & 4.16149250e+11 & -6.72736962e+12 \end{bmatrix}$ 0.145454 After sorting 2 2 0.127272 3 3 Fitness function $\begin{bmatrix} 0.00000000e+00 & 1.24031745e+01 & -6.21194106e+00 & 4.48658051e+02 \\ 3.82190689e+02 & 8.06792169e+05 & -6.01876916e+05 & -1.25158557e+07 \\ 3.48409638e+08 & 4.64347943e+11 & -6.73242018e+12 \end{bmatrix}$ 0.109090 4 6 After sorting $\begin{array}{l} [\,0.00000000e+00\ \ 1.24031745e+01\ \ \cdot 5.96220780e+00\ \ 4.93390314e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ \cdot 6.01876916e+05\ \ \cdot 1.25158557e+07\ \ 3.48409638e+08\ \ 4.64347943e+11\ \ \cdot 6.73242018e+12] \end{array}$ 0.090909 5 9 0.072727 6 8 7 $\begin{array}{l} [\,0.00000000e+00\ \ 1.24031745e+01\ \ -6.21194106e+00\ \ 4.48658051e+02\ \ 3.18778503e+02\ \ 8.06792169e+05\ \ -6.41051824e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -6.21194106e+00\ \ 4.48658051e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.64347943e+11\ \ -6.73242018e+12] \end{array}$ 0.054545 4 Fitness function After sorting $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -5.96220780e+00\ \ 4.93390314e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.64347943e+11\ \ -6.73242018e+12] \end{array}$ 0.036363 8 5 0.0181818 $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -6.21194106e+00\ \ 4.48658051e+02\ \ 3.18778503e+02\ \ 8.06792169e+05\ \ -6.41051824e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ 9 7

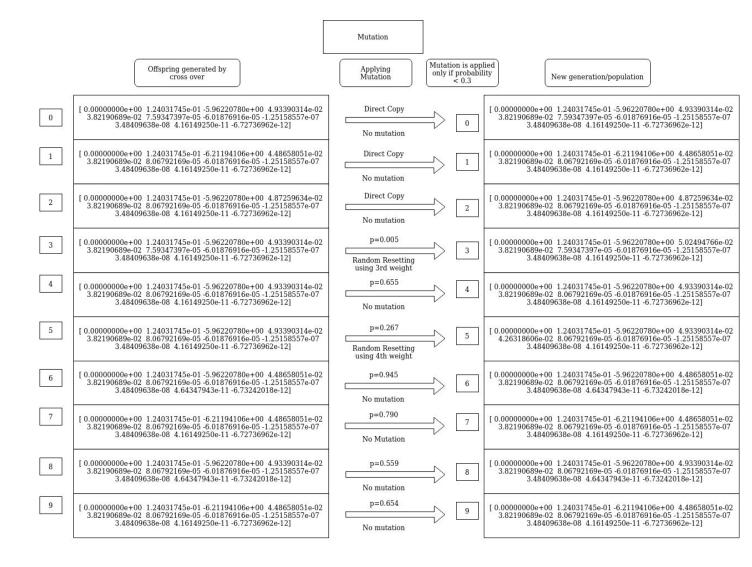
2nd Iteration

Now applying One-Point Cross-over

One-Point Cross-over Sorted Population according to fitness Offspring generated by crsoss-over of parents Probability values inversely oportionate to Parents $\begin{bmatrix} 0.00000000e+00 & 1.24031745e+01-5.96220780e+00 & 4.93390314e+02 \\ 3.82190689e+02 & 7.59347397e+05-6.01876916e+05-1.25158557e+07 \\ 3.48409638e+08 & 4.16149250e+11-6.72736962e+12 \end{bmatrix}$ $\begin{bmatrix} 0.000000000+00 & 1.24031745e-01 \cdot 5.96220780e+00 & 4.93390314e-02 \\ 3.82190689e-02 & 7.59347397e-05 \cdot 6.01876916e-05 \cdot 1.25158557e-07 \\ 3.48409638e-08 & 4.16149250e-11 \cdot 6.72736962e-12 \end{bmatrix}$ 0.181818 Copy directly 0 0 $\begin{array}{l} [\ 0.000000000e+00 \ \ 1.24031745e+01 \ \ -6.21194106e+00 \ \ 4.48658051e+02 \\ 3.82190689e+02 \ \ 8.06792169e+05 \ \ -6.01876916e+05 \ \ -1.25158557e+07 \\ 3.48409638e+08 \ \ 4.16149250e+11 \ \ -6.72736962e+12] \end{array}$ $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -6.21194106e+00\ \ 4.48658051e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ 0.163636 1 Copy directly 1 $\begin{bmatrix} 0.00000000e+00 & 1.24031745e-01 \cdot 5.96220780e+00 & 4.87259634e-02 \\ 3.82190669e-02 & 8.06792169e-05 \cdot 6.01876916e-05 \cdot 1.25158557e-07 \\ 3.48409638e-08 & 4.16149250e-11 \cdot 6.72736962e-12 \end{bmatrix}$ $\begin{bmatrix} 0.000000000+00 & 1.24031745e-01 \cdot 5.96220780e+00 & 4.87259634e-02 \\ 3.82190689e-02 & 8.06792169e-05 \cdot 6.01876916e-05 \cdot 1.25158557e-07 \\ 3.48409638e-08 & 4.16149250e-11 \cdot 6.72736962e-12 \end{bmatrix}$ 0.145454 2 Copy directly 2 $\begin{bmatrix} 0.00000000e+00 & 1.24031745e-01 -5.96220780e+00 & 4.93390314e-02 \\ 3.82190669e-02 & 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 \\ 3.48409638e-08 & 4.16149250e-11 -6.72736962e-12 \end{bmatrix}$ $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: \text{-}5.96220780e+00\:\: 4.93390314e+02\:\: \\ 3.82190689e+02\:\: 7.59347397e+05\:\: \text{-}6.01876916e+05\:\: -1.25158557e+07\:\: \\ 3.48409638e+08\:\: 4.16149250e+11\:\: \text{-}6.72736962e+12] \end{array}$ 3 0.127272 0,1 $\begin{bmatrix} 0.00000000e+00 & 1.24031745e-01 \cdot 5.96220780e+00 & 4.93390314e-02 \\ 3.82190689e-02 & 8.06792169e-05 \cdot 6.01876916e-05 \cdot 1.25158557e-07 \\ 3.48409638e-08 & 4.16149250e-11 \cdot 6.72736962e-12 \end{bmatrix}$ [0.00000000e+00 1.24031745e-01-5.96220780e+00 4.93390314e-02 3.82190689e-02 8.06792169e-05-6.01876916e-05-1.25158557e-07 3.48409638e-08 4.16149250e-11-6.72736962e-12] 4 Cross Over 0.109090 6,5 Parent selection proportional to prob value 5 0.090909 0.6 $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: -5.96220780e+00\:\: 4.48658051e+02\:\: 3.82190689e+02\:\: 8.06792169e+05\:\: -6.01876916e+05\:\: -1.25158557e+07\:\: 3.48409638e+08\:\: 4.64347943e+11\:\: -6.73242018e+12] \end{array}$ 0.072727 6 Cross Over 4,5 Parent selection proportional to prob value $\begin{bmatrix} 0.000000000e+00 & 1.24031745e+01 & -6.21194106e+00 & 4.48658051e+02 \\ 3.82190689e+02 & 8.06792169e+05 & -6.01876916e+05 & -1.25158557e+07 \\ 3.48409638e+08 & 4.64347943e+11 & -6.73242018e+12 \end{bmatrix}$ 7 0.054545 0,1 $\begin{bmatrix} 0.000000000e+00 & 1.24031745e+01 & -5.96220780e+00 & 4.93390314e+02 \\ 3.82190689e+02 & 8.06792169e+05 & -6.01876916e+05 & -1.25158557e+07 \\ 3.48409638e+08 & 4.64347943e+11 & -6.73242018e+12 \end{bmatrix}$ $\begin{bmatrix} 0.00000000e+00 & 1.24031745e+01 & -5.96220780e+00 & 4.93390314e+02 \\ 3.82190689e+02 & 8.06792169e+05 & -6.01876916e+05 & -1.25158557e+07 \\ 3.48409638e+08 & 4.64347943e+11 & -6.73242018e+12 \end{bmatrix}$ 0.036363 8 5,6 Cross Over Parent selection proportional to 0.0181818 9 prob value 1,4

2nd Iteration:

Now applying Random Resetting Mutation



3rd Iteration

Applying Fitness Function

Iteration 3

	Initial Population			Applying fitness function and sorting in increasing order of fitness value	Probability values inversely proportionate to fitness
0	[0.0000000e+00 1.24031745e-01 -5.96220780e+00 4.93390314e-02 3.82190689e-02 7.59347397e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]		3	[0.00000000e+00 1.24031745e-01 -5.96220780e+00 5.02494766e-02 3.82190689e-02 7.59347397e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	0.181818
1	[0.0000000e+00 1.24031745e-01 -6.21194106e+00 4.48658051e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	Fitness function	0	[0.00000000e+00 1.24031745e-01 -5.96220780e+00 4.93390314e-02 3.82190689e-02 7.59347397e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	0.163636
2	[0.0000000e+00 1.24031745e-01 -5.96220780e+00 4.87259634e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	After sorting	1	[0.00000000e+00 1.24031745e-01-6.21194106e+00 4.48658051e-02 3.82190689e-02 8.06792169e-05-6.01876916e-05-1.25158557e-07 3.48409638e-08 4.16149250e-11-6.72736962e-12]	0.145454
3	[0.0000000e+00 1.24031745e-01 -5.96220780e+00 5.02494766e-02 3.82190689e-02 7.59347397e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]		7	[0.00000000e+00 1.24031745e-01 -6.21194106e+00 4.48658051e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	0.127272
4	[0.0000000e+00 1.24031745e-01 -5.96220780e+00 4.93390314e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	Fitness function	9	[0.00000000e+00 1.24031745e-01 -6.21194106e+00 4.48658051e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	0.109090
5	[0.00000000e+00 1.24031745e-01 -5.96220780e+00 4.93390314e-02 4.26318606e-02 8.06792169e-05 -6.01876916e-05 -1.2515857e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	After sorting	2	[0.00000000e+00 1.24031745e-01 -5.96220780e+00 4.87259634e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	0.090909
6	[0.0000000e+00 1.24031745e-01 -5.96220780e+00 4.48658051e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.64347943e-11 -6.73242018e-12]		4	[0.00000000e+00 1.24031745e-01 -5.96220780e+00 4.93390314e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	0.072727
7	[0.0000000e+00 1.24031745e-01 -6.21194106e+00 4.48658051e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	Fitness function	6	[0.00000000e+00 1.24031745e-01 -5.96220780e+00 4.48658051e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.64347943e-11 -6.73242018e-12]	0.054545
8	[0.00000000e+00 1.24031745e-01 -5.96220780e+00 4.93390314e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.64347943e-11 -6.73242018e-12]	After sorting	8	[0.00000000e+00 1.24031745e-01 -5.96220780e+00 4.93390314e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.64347943e-11 -6.73242018e-12]	0.036363
9	[0.0000000e+00 1.24031745e-01 -6.21194106e+00 4.48658051e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]		5	[0.00000000e+00 1.24031745e-01 -5.96220780e+00 4.93390314e-02 4.26318606e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12]	0.0181818

3rd Iteration

Now applying One-Point Cross-over

One-Point Crossover

Offspring generated by crsoss-over of parents Parents $\begin{array}{l} [\,0.00000000e+00\ \ 1.24031745e+01\ \ -5.96220780e+00\ \ 5.02494766e+02\ \ 3.82190689e+02\ \ 7.59347397e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ $\begin{bmatrix} 0.00000000e+00 & 1.24031745e-01 \cdot 5.96220780e+00 & 5.02494766e-02 \\ 3.82190689e\cdot02 & 7.59347397e-05 \cdot 6.01876916e-05 \cdot 1.25158557e-07 \\ 3.48409638e\cdot08 & 4.16149250e-11 \cdot 6.72736962e-12 \end{bmatrix}$ 0.181818 Copy directly 0 0 $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: -5.96220780e+00\:\: 4.93390314e+02\:\: 3.82190689e+02\:\: 7.59347397e+05\:\: -6.01876916e+05\:\: -1.25158557e+07\:\: 3.48409638e+08\:\: 4.16149250e+11\:\: -6.72736962e+12] \end{array}$ 0.163636 1 Copy directly 1 0.145454 2 Copy directly 2 $\begin{bmatrix} 0.00000000e+00 & 1.24031745e-01 \cdot 6.21194106e+00 & 4.48658051e-02 \\ 3.82190689e\cdot02 & 8.06792169e\cdot05 \cdot 6.01876916e-05 \cdot 1.25158557e-07 \\ 3.48409638e-08 & 4.16149250e-11 \cdot 6.72736962e-12 \end{bmatrix}$ 0.127272 3 4,1 4 Cross Over 0.109090 2,1 Parent selection roportional to prob value $\begin{array}{l} [\,0.00000000e+00\ \ 1.24031745e+01\ \ \cdot 5.96220780e+00\ \ 4.87259634e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ \cdot 6.01876916e+05\ \ \cdot 1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ \cdot 6.72736962e+12] \end{array}$ $\begin{array}{l} [\ 0.000000000e+00\ \ 1.24031745e+01\ \ -5.96220780e+00\ \ 4.48658051e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ 5 0.090909 3,6 $\begin{bmatrix} 0.000000000+00 & 1.24031745e-01 -5.96220780e+00 & 4.93390314e-02 \\ 3.82190689e-02 & 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 \\ 3.48409638e-08 & 4.16149250e-11 -6.72736962e-12 \end{bmatrix}$ [0.00000000e+00 1.24031745e-01 -5.96220780e+00 4.93390314e-02 3.82190689e-02 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 3.48409638e-08 4.16149250e-11 -6.72736962e-12] 0.072727 6 Cross Over 4,5 Parent selection proportional to prob value $\begin{array}{l} [\: 0.00000000e+00\:\: 1.24031745e+01\:\: -5.96220780e+00\:\: 4.48658051e+02\:\: 3.82190689e+02\:\: 8.06792169e+05\:\: -6.01876916e+05\:\: -1.25158557e+07\:\: 3.48409638e+08\:\: 4.64347943e+11\:\: -6.73242018e+12] \end{array}$ 7 0.054545 6,0 $\begin{bmatrix} 0.000000000+00 & 1.24031745e-01 -5.96220780e+00 & 4.93390314e-02 \\ 3.82190689e-02 & 8.06792169e-05 -6.01876916e-05 -1.25158557e-07 \\ 3.48409638e-08 & 4.64347943e-11 -6.73242018e-12 \end{bmatrix}$ 0.036363 8 4,5 Cross Over Parent selection proportional to prob value $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -5.96220780e+00\ \ 4.93390314e+02\ \ 4.26318606e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ 0.0181818 9 5,4

3rd Iteration:

Now applying Random Resetting Mutation

Mutation Offspring generated by cross over Applying Mutation New generation/population $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -5.96220780e+00\ \ 5.02494766e+02\ \ 3.82190689e+02\ \ 7.59347397e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ Direct Copy 0 0 No mutation $\begin{array}{c} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ \text{-}5.96220780e+00\ \ 4.93390314e+02\ \ 3.82190689e+02\ \ 7.59347397e+05\ \ \text{-}6.01876916e+05\ \ \text{-}1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ \text{-}6.72736962e+12] \end{array}$ $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -5.96220780e+00\ \ 4.93390314e+02\ \ 3.82190689e+02\ \ 7.59347397e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ Direct Copy 1 1 No mutation $\begin{array}{l} [\ 0.000000000e+00\ \ 1.24031745e+01\ \ -6.21194106e+00\ \ 4.48658051e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ Direct Copy 2 2 No mutation p=0.303 $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -6.21194106e+00\ \ 4.93390314e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ 3 3 No Mutation p=0.131 4 $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -6.21194106e+00\ \ 4.48658051e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ 4 Random Resetting using 10th weight p=0.246 $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ \text{-}5.96220780e+00\ \ 4.48658051e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ \text{-}6.01876916e+05\ \ \text{-}1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ \text{-}6.72736962e+12] \end{array}$ 5 Random Resetting using 8th weight $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ -5.96220780e+00\ \ 4.93390314e+02\ \ 3.82190689e+02\ \ 8.06792169e+05\ \ -6.01876916e+05\ \ -1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ -6.72736962e+12] \end{array}$ $\begin{bmatrix} 0.00000000e+00 & 1.24031745e+01 & -5.96220780e+00 & 4.93390314e+02 \\ 3.82190689e+02 & 8.06792169e+05 & -6.01876916e+05 & -1.25158557e+07 \\ 3.48409638e+08 & 4.16149250e+11 & -6.72736962e+12 \end{bmatrix}$ p=0.331 6 6 No mutation p = 0.4017 No Mutation $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ \text{-}5.96220780e+00\ \ 4.93390314e+02\ \ 4.26318606e+02\ \ 8.06792169e+05\ \ \text{-}6.01876916e+05\ \ \text{-}1.25158557e+07\ \ \ 3.48409638e+08\ \ 4.16149250e+11\ \ \text{-}6.72736962e+12] \end{array}$ $\begin{array}{l} [\ 0.00000000e+00\ \ 1.24031745e+01\ \ \text{-}5.96220780e+00\ \ 4.93390314e+02\ \ 4.26318606e+02\ \ 8.06792169e+05\ \ \text{-}6.01876916e+05\ \ \text{-}1.25158557e+07\ \ 3.48409638e+08\ \ 4.16149250e+11\ \ \text{-}6.72736962e+12] \end{array}$ p = 0.4838 8 No mutation p=0.040 9 No mutation