GA steps

Q: $f(x) = x_1^2 + x_2^2$ maximized.

String	Initial Population	f(x)	% total	Number Selected	Mating pool	Mate	Crossover Site	New Population	f(x)
1	11001000					3	3		
2	0111 0011					4	3		
3	0101 1000					5	6		
4	1010 0100					2	6		
5	1001 0011					1	6		
Total							Total		
Average							Average		

1101 1000
0111 0100
0101 1000
1010 0111
1100 1000

Solution ①

String	Initial Population	f(x)	% total	Number Selected	Mating pool	Mate	Crossover Site	New Population	f(x)
1	1100 1000 (12 8)	208	37.08	2	1100 1000	3	3	1101 (13) 1000 (8)	233
2	0111 0011 (7 3)	58	10.34	0	1100 1000	4	3	1100 (12) 0100 (4)	160
3	0101 1000 (5 8)	89	15.86	1	0101 1000	5	6	0101 (5) 1011 (11)	146
4	1010 0100 (10 4)	116	20.68	1	1010 0100	2	6	1010 (10) 0100 (4)	116
5	1001 0011 (9 3)	90	16.04	1	1001 0011	1	6	1001 (9) 0000 (0)	81
Total		561					Total		736
Average		112.2					Average		147.2

1 1 1 1
8 4 2 1

1 ~~37.08~~ ~~17.08~~
2 10.34
3 ~~15.86~~
4 ~~20.68~~ 0.68
5 ~~16.04~~

1	1100 1000	3	3
2	0111 0011	4	3
3	0101 1000	5	6
4	1010 0101	2	6
5	1100 1000	1	6

1101 1000

0110 0100

0101 1000

1010 0111

1100 1000