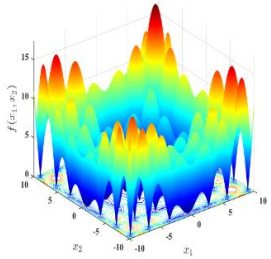
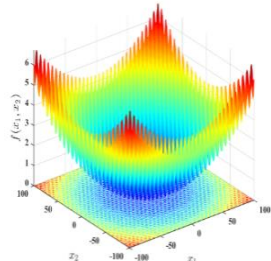
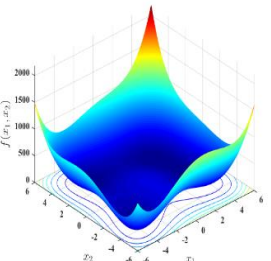
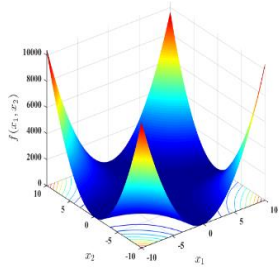


Function	Graph	Dimension	Domain	Reference provided global minimum	Reference provided global minimizers	Algorithm minimum	Algorithm Minimizers	Multiple Runs of L
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Approximate minimum but incorrect minimizers (total 19 sample formulas)

Alpine01		2	[-10,10]	0	[0,0]	4.624237101917 214e-05	[-0.099934895833333, 0.099934895833333]	3
Griewank		2	[-600,600]	0	[0,0]	0.007396061380 782	[-3.139953613281250, 4.438171386718750; .139953613281250,- 4.438171386718750;- 3.139953613281250,4 .438171386718750;3. 139953613281250,4.4 38171386718750]	6
Himmelblau		2	[-6,6]	0	[0,0]	1.466154473014 505e-06	[- 2.805273437500000,3 .131445312500000]	4

Mishra07



2

[-10,10]

0

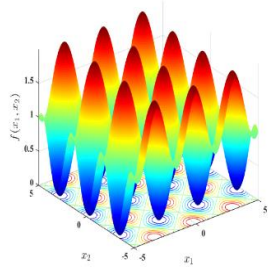
$[\sqrt{2}, \sqrt{2}]$

1.138607645471
809e-08

[-1.180013020833332,
1.694986979166668;-
1.694986979166668,-
1.180013020833332;1
.694986979166668,1.
180013020833332;1.1
80013020833332,1.69
4986979166668]

3

Parsopoulos



2

[-5,5]

0

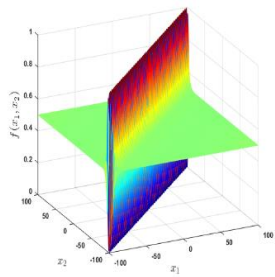
$[\pm 0.5\pi, 0]; [\pm 1.5\pi, 0];$
 $[\pm 0.5\pi, \pm\pi];$
 $[\pm 1.5\pi, \pm\pi]$

[3.10989549379
3776e-
08;3.109895493
794567e-
08;3.109895493
825062e-
08;3.109895493
825853e-08]

[-
4.712565104166666,3
.141601562500000;-
4.712565104166666,-
3.141601562500000;4
.712565104166667,3.
141601562500000;4.7
12565104166667,-
3.141601562500000]

3

Pathological



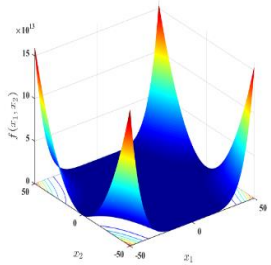
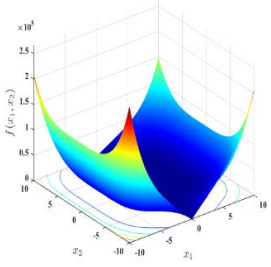
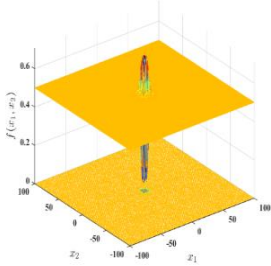
2

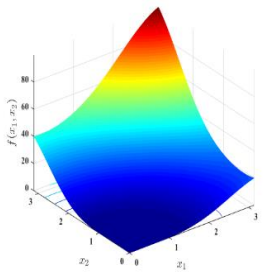
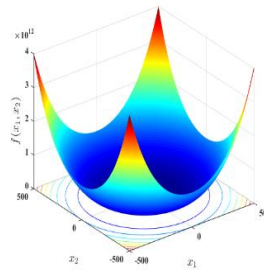
$[-100,100]$ 0

$[0,0]$

[4.05234058747 [-0.6250000000000005,
928e- 0.6250000000000005],
06;4.052340587 [0.6250000000000005,
47928e- 0.6250000000000005],
06;1.509641525 [-13.1250000000000,-
79869e- 13.5416666666667],
05;1.509641525 [13.1250000000000,1
79869e- 3.5416666666667], [-
05;3.052971673 11.8750000000000,-
96135e- 12.2916666666667],
05;3.052971673 [11.8750000000000,1
96135e- 2.2916666666667], [-
05;3.309257001 14.3750000000000,-
83227e- 14.7916666666667],
05;3.309257001 [14.3750000000000,1
83227e- 4.7916666666667], [-
05;3.647067117 1.87500000000001,-
43490e- 1.87500000000001],
05;3.647067117 [1.87500000000001,1.
43490e- 87500000000001], [-
05;7.975179196 10.6250000000000,-
61761e- 11.0416666666667],
05;7.975179196 [10.6250000000000,1
61761e- 1.0416666666667], [-
05;8.427264546 15.6250000000000,-
53442e- 16.0416666666667],
05;8.427264546 [15.6250000000000,1
53442e- 6.0416666666667]. [-

5

Price04		2	[-50,50]	0	[0,0];[2,4];[1.4 64,-2.506]	9.631929322238 345e-07	[- 0.009562174479169,0 .060017903645836]	3
Quintic		2	[-10,10]	0	[-1,-1]	7.232938200392 169e-04	[-0.402669270833333, 0.402669270833333]	3
Schaffer03		2	[- 100, 100]	0.00156685	[0,1.253115]	0.001832517909 132	[-0.416870117187505, 1.32059733072917];[- 1.32059733072917,- 0.416870117187505]; [0.416870117187505,- 1.32059733072917];[1.32059733072917,- 0.416870117187505]; [- 1.32059733072917,0. 416870117187505];[- 0.416870117187505,1 .32059733072917];[1. 32059733072917,0.41 6870117187505];[0.41	8

Trigonometric0		2	$[0, \pi]$	0	$[0, 0]$	6.474874949090 597e-08	$[0.900139926331294,$ $0.231324302813155]$	4
WayburnSeader		2	$[-500, 500]$	0	$[0.2, 1]$	0.005546922232 668	$[-$ $0.004323323567689, 1$ $.074473063151022]$	4
Alpine01		3	$[-10, 10]$	0	$[0, 0, 0]$	2.084497271503 255e-05	$[-0.100097656249999,$ $0.100097656249999,$ $0.100097656249999]$	3
Mishra07		3	$[-10, 10]$	0	$[\sqrt{3}, \sqrt{3}, \sqrt{3}]$	24 solutions and the minimum is 2.143347050752 935e-05	24 solutions	3
Mishra07		4	$[-10, 10]$	0	$[2, 2, 2, 2]$	3.4874024208350	96 solutions 960 solutions	3
Mishra07		5	$[-10, 10]$	0	$[\sqrt{5}, \sqrt{5}, \sqrt{5}]$	and the minimum is 1.053219782010 109e-05	960 solutions	3

Quintic	3	[-10,10]	0	[-1,-1,-1]	0.003188047402 010	[-0.402506510416667, 0.402506510416667,- 0.402506510416667]	3
Trigonometric01	3	[0, π]	0	[0,0,0]	1.961328390279 516e-07	[0.887868080028209, 0.232142425900027,0 .146648563321867]	3
Trigonometric01	4	[0, π]	0	[0,0,0,0]	4.919181527330 797e-07	[0.881080215041815, 0.232973332160132,0 .147070408038536,0. 107953897947452]	3
Trigonometric01	5	[0, π]	0	[0,0,0,0,0]	5.040115581325 089e-05	[0.871109339920559, 0.229905370584360,0 .145152932053679,0. 106419917159566,0.0 84177195735225]	3