Console

r	x(r)	y(r)	z(r)
0.	0.	0.	0.
1.	2.5	3.	3.
2.	2.875	2.3636364	1.
3.	3.1363636	2.0454545	0.9715909
4.	3.0241477	1.9478306	0.9204545
5.	3.0003228	1.9839876	1.0009685
6.	2.9937532	1.9999707	1.0038417
7.	2.9990286	2.0026208	1.0031307
8.	3.0002001	2.0006379	0.9998305
9.	3.0002816	1.9999118	0.9997405
10.	3.0000318	1.999874	0.9998813
11.	2.9999824	1.9999776	1.0000156
12.	2.9999877	2.0000078	1.0000144
13.	2.9999993	2.0000058	1.0000042
14.	3.0000011	2.0000006	0.9999989
15.	3.0000005	1.9999995	0.9999993
16.	3.	1.9999997	0.9999999
17.	2.9999999	2.	1.0000001
18.	3.	2.	1.
19.	3.	2.	1.

After 18 iterations exact solution is:
x=2   y=2   z=1