Raphson 3x3

Current Folder

Name

Published

Workspace

Name	Value	Size	Class
dx	[-8.3194e-06;...	3×1	double
error	2.0279e-06	1×1	double
F	@(x)[x(1)^3+x...	1×1	function_handle
J	@(x)[3*x(1)^2...	1×1	function_handle
n	4	1×1	double
tol	1.0000e-05	1×1	double
x	[4.3573;1.666...	3×1	double

Command Window

```
Iteraciones : 4
Respuesta : 4.357338
Respuesta : 1.666565
Respuesta : -3.466097
>>
```

umamatrices.m | matriztrisup.m | diangonalprincipal.m | caltraza.m | MatTrialnf.m | MatDiagonal.m

```
1  %newthon raphson 3 x 3
2  clc
3
4  F= @(x) [
5      x(1)^3 + x(2)^3 - x(3)^3 - 129;
6      x(1)^2 + x(2)^2 - x(3)^2 - 9.75;
7      x(1) + x(2) - x(3) - 9.49;
8         ];
9
10 J= @(x) [
11     3*x(1)^2, 3*x(2)^2, -3*x(3)^2;
12       2*x(1),   2*x(2), -2*x(3);
13            1,        1,     -1;
14     ];
15
16 x = [4; 2; -3];
17
18 error = 1e3;
19 tol = 1e-5;
20 n = 0;
21
22 while error > tol
23     dx = -J(x)\F(x);
24     error = norm(dx)/norm(x);
25     x = x + dx;
26     n = n+1;
27 end
28 fprintf("Iteraciones : %d \n",n);
29
30 fprintf("Respuesta : %f \n", x.');
31 % F([4.357338, 1.666565, -3.466097])
```

			Matriz Jacobia	3x^2	3y^2	-3z^2											
				2x	2y	-2z											
x^3 + y^3 - z^3 - 129 = 0	f1			1	1	-1											
x^2 + y^2 - z^2 - 9.75 = 0	f2																
x + y - z - 9.49 = 0	f3		x	y	z	f1	f2	f3	h1	h2	h3						
		1	4	2	-3	-30	1.25	-0.49	0.4596428571	-0.4745	-0.5048571429						
		2	4.45964286	1.52550000	-3.50485714	6.29904081	0.18154107	0.00000000	-0.09753731	0.13638503	0.03884771						
		3	4.36210554	1.66188503	-3.46600943	0.22982605	0.02660526	0.00000000	-0.00475967	0.00467183	-0.00008784						
		4	4.35734587	1.66655686	-3.46609727	0.00040536	0.00004447	0.00000000	-0.00000832	0.00000835	0.00000003						
		5	4.35733755	1.66656520	-3.46609724	0.00000000	0.00000000	0.00000000									
	itr	X		J			F (-1)	deltas h		inversa			identidad				
	1	x	4	48	12	-27	30	0.4596428571		0.0238095238	0.0357142857	-0.42857	1.00000000	0.00000000	0.00000000		
		y	2	8	4	6	-1.25	-0.4745		-0.0333333333	0.05	1.2	0.00000000	1.00000000	0.00000000		
		z	-3	1	1	-1	0.49	-0.5048571429		-0.0095238095	0.0857142857	-0.22857	0.00000000	0.00000000	1.00000000		
	itr																
	2	x	4.459642857	59.66524324	6.98145075	-36.85207078	-6.299040813	-0.0975373124		0.0142639226	0.0423509565	-0.22879	1.00000000	0.00000000	0.00000000		
		y	1.5255	8.919285714	3.051	7.009714286	-0.1815410714	0.1363850258		-0.0225838858	0.0323441574	1.05898	0.00000000	1.00000000	0.00000000		
		z	-3.504857143	1	1	-1	0	0.03884771344		-0.0083199632	0.0746942530	-0.16980	0.00000000	0.00000000	1.00000000		
	3	x	4.362105545	57.08389435	8.285585517	-36.03966409	-0.2298260494	-0.004759674983		0.0157696595	0.0426756413	-0.27250	1.00000000	0.00000000	0.00000000		
		y	1.661885026	8.724211089	3.323770052	6.932018859	-0.02660525774	0.004671830582		-0.0240735664	0.0323583440	1.09191	0.00000000	1.00000000	0.00000000		
		z	-3.466009429	1	1	-1	0	-0.00008784440117		-0.0083039069	0.0750339853	-0.18059	0.00000000	0.00000000	1.00000000		
	4	x	4.35734587	56.95938909	8.332235267	-36.04149093	-0.0004053553285	-0.00000831940434		0.0158343838	0.0427419206	-0.27439	1.00000000	0.00000000	0.00000000		
		y	1.666556856	8.71469174	3.333113713	6.932194548	-0.0000444727903	0.000008348505589		-0.0241355444	0.0322661551	1.09355	0.00000000	1.00000000	0.00000000		
		z	-3.466097274	1	1	-1	0	0.0000000291012490		-0.0083011605	0.0750080757	-0.18084	0.00000000	0.00000000	1.00000000		