

Método **secante** para resolver ecuación $x^3 - x^2 + 0.1x + 0.0625 = 0$

Las tres raíces/soluciones están en el intervalo $[-1,1]$

Equipo: 3 o 4 integrantes

Jesus Francisco Melgarejo Saldaña
Luis Xavier Monrroy Gutierrez
Edgar Fabian Ramirez Silvestre
Jose Luis Ramos Monrreal

1.- Ejecutar el programa en python para tabular $f(x)$ en el intervalo $[-1,1]$ para así obtener valores iniciales para las tres soluciones.

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i          x          f(x)  
1          -1.0        -2.0375  
2 -0.9591836734693877 -1.835932625861673  
3 -0.9183673469387755 -1.647285038546864  
4 -0.8775510204081632 -1.471149244787461  
5 -0.8367346938775511 -1.307117251315353  
6 -0.7959183673469388 -1.15478106486243  
7 -0.7551020408163265 -1.013732692160579  
8 -0.7142857142857143 -0.8835641399416909  
9 -0.6734693877551021 -0.7638674149376538  
10 -0.6326530612244898 -0.6542345238803561  
11 -0.5918367346938775 -0.5542574735016872  
12 -0.5510204081632654 -0.4635282705335363  
13 -0.5102040816326531 -0.3816389217077918  
14 -0.4693877551020409 -0.3081814337563432  
15 -0.4285714285714286 -0.2427478134110788  
16 -0.3877551020408164 -0.184930067403888  
17 -0.3469387755102041 -0.1343202024666593  
18 -0.3061224489795918 -0.09051022533128203  
19 -0.2653061224489797 -0.05309214272964503  
20 -0.2244897959183674 -0.02165796139363703  
21 -0.18367346938775520 0.04200311944852861  
22 -0.1428571428571429 0.02489067055393584  
23 -0.1020408163265307 0.04082110770172288  
24 -0.06122448979591844 0.05239961665632516  
25 -0.02040816326530615 0.06003419068585368  
26 0.02040816326530615 0.06413282305841954  
27 0.06122448979591821 0.0651035070421338  
28 0.1020408163265305 0.06335423590510758  
29 0.1428571428571428 0.05929300291545191  
30 0.1836734693877551 0.05332780134127788  
31 0.2244897959183672 0.0458666244506966
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32 0.2653061224489794 0.03731746551181909
33 0.3061224489795917 0.02808831779275646
34 0.346938775510204 0.01858717456161976
35 0.3877551020408163 0.009222029086520069
36 0.4285714285714284 0.0004008746355685516
37 0.4693877551020407-0.007468295523123836
38 0.510204081632653-0.01397748812144597
39 0.5510204081632653-0.01871870989128677
40 0.5918367346938773-0.02128396756453516
41 0.6326530612244896-0.02126526787308008
42 0.6734693877551019-0.01825461754881046
43 0.7142857142857142 -0.0118440233236152
44 0.7551020408163265-0.001625491929383174
45 0.7959183673469385 0.01280896990199656
46 0.8367346938775508 0.03186735543863527
47 0.8775510204081631 0.05595765794864377
48 0.9183673469387754 0.08548787070013342
49 0.9591836734693877 0.120865986961215
50 1.0 0.1625
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2.- Seleccionar valores iniciales para cada una de las tres raíces en orden de arriba hacia abajo de los valores tabulados y ejecutar programa.

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x0 = -0.3
x1 = -0.4

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'Secante'
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i	x0	x2	x1	f(x0)	f(x2)	f(x1)	ERP
0	-0.4000000000000000	-0.2277777777777778	-0.253985507246377	-0.2015000000000000	-0.023978223593964	-0.043791447732406	36.503623188405790
1	-0.253985507246377	-0.213441187134017	-0.199348432301384	-0.043791447732406	-0.014125029200555	-0.005096707014987	21.511886854233818
2	-0.199348432301384	-0.192151868686083	-0.191100215884732	-0.005096707014987	-0.000732224258316	-0.000108158782511	4.137587801133226
3	-0.191100215884732	-0.190921382884842	-0.190917440618529	-0.000108158782511	-0.000002383179237	-0.000000052552831	0.095643673324392
4	-0.190917440618529	-0.190917351767427	-0.190917351724218	-0.000000052552831	-0.000000000025557	-0.000000000000012	0.000046561650061
5	-0.190917351724218	-0.190917351724197	-0.190917351724197	-0.000000000000012	0.000000000000000	0.000000000000000	0.00000000011020
6	-0.190917351724197	-0.190917351724197	-0.190917351724197	0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000000

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resumen :
valor x2 = -0.19091735172419738  valor f(x2)= 0.000000000000000  valor ERP = 0.000000000000000

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x0 = 0.42
x1 = 0.38

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i	x0	x2	x1	f(x0)	f(x2)	f(x1)	ERP
0	0.3800000000000000	0.429963570127505	0.428377425044092	0.0109720000000000	0.000114479437644	0.000440873863966	12.730901327392569
1	0.428377425044092	0.430402692050906	0.430515169472106	0.000440873863966	0.000024374413907	0.000001312809982	0.499032932884977
2	0.430515169472106	0.430521554141992	0.430521573410571	0.0000001312809982	0.000000003961951	0.000000000011957	0.001487505880902
3	0.430521573410571	0.430521573468896	0.430521573468897	0.000000000011957	0.000000000000000	-0.000000000000000	0.000000013547769
4	0.430521573468897	0.430521573468897	0.430521573468897	-0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000013
5	0.430521573468897	0.430521573468897	0.430521573468897	0.000000000000000	0.000000000000000	-0.000000000000000	0.000000000000013
6	0.430521573468897	0.430521573468897	0.430521573468897	-0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000013
7	0.430521573468897	0.430521573468897	0.430521573468897	0.000000000000000	0.000000000000000	-0.000000000000000	0.000000000000013
8	0.430521573468897	0.430521573468897	0.430521573468897	-0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000013
9	0.430521573468897	0.430521573468897	0.430521573468897	0.000000000000000	0.000000000000000	-0.000000000000000	0.000000000000013
10	0.430521573468897	0.430521573468897	0.430521573468897	-0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000013
11	0.430521573468897	0.430521573468897	0.430521573468897	0.000000000000000	0.000000000000000	-0.000000000000000	0.000000000000013
12	0.430521573468897	0.430521573468897	0.430521573468897	-0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000013
13	0.430521573468897	0.430521573468897	0.430521573468897	0.000000000000000	0.000000000000000	-0.000000000000000	0.000000000000013
14	0.430521573468897	0.430521573468897	0.430521573468897	-0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000013
15	0.430521573468897	0.430521573468897	0.430521573468897	0.000000000000000	0.000000000000000	-0.000000000000000	0.000000000000013
16	0.430521573468897	0.430521573468897	0.430521573468897	-0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000013
17	0.430521573468897	0.430521573468897	0.430521573468897	0.000000000000000	0.000000000000000	-0.000000000000000	0.000000000000013
18	0.430521573468897	0.430521573468897	0.430521573468897	-0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000013
19	0.430521573468897	0.430521573468897	0.430521573468897	0.000000000000000	0.000000000000000	-0.000000000000000	0.000000000000013
20	0.430521573468897	0.430521573468897	0.430521573468897	-0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000013
21	0.430521573468897	0.430521573468897	0.430521573468897	0.000000000000000	0.000000000000000	-0.000000000000000	0.000000000000013
22	0.430521573468897	0.430521573468897	0.430521573468897	-0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000013
23	0.430521573468897	0.430521573468897	0.430521573468897	0.000000000000000	0.000000000000000	-0.000000000000000	0.000000000000013
24	0.430521573468897	0.430521573468897	0.430521573468897	-0.0000000			

	x0	x2	x1	f (x0)	f (x2)	f (x1)	ERP
0	0.7100000000000000	0.763069845253032	0.775985439417577	-0.0126890000000000	0.000848339181059	0.005207414147382	9.293723861630573
1	0.775985439417577	0.756785307597060	0.761295535547295	0.005207414147382	-0.001116361168591	0.000283394061450	1.893064370036103
2	0.761295535547295	0.760450081741774	0.760399063886207	0.000283394061450	0.000017044954177	0.000001031089698	0.117756064396689
3	0.760399063886207	0.760395790288791	0.760395778299373	0.000001031089698	0.000000003776274	0.000000000013831	0.000432087174906
4	0.760395778299373	0.760395778255301	0.760395778255301	0.000000000013831	0.000000000000000	-0.000000000000000	0.000000005796013
5	0.760395778255301	0.760395778255301	0.760395778255301	-0.000000000000000	0.000000000000000	0.000000000000000	0.000000000000015
6	0.760395778255301	0.760395778255301	0.760395778255301	0.000000000000000	-0.000000000000000	-0.000000000000000	0.000000000000015
7	0.760395778255301	0.760395778255301	0.760395778255301	-0.000000000000000	-0.000000000000000	0.000000000000000	0.000000000000015
8	0.760395778255301	0.760395778255301	0.760395778255301	0.000000000000000	-0.000000000000000	-0.000000000000000	0.000000000000015
9	0.760395778255301	0.760395778255301	0.760395778255301	-0.000000000000000	-0.000000000000000	0.000000000000000	0.000000000000015
10	0.760395778255301	0.760395778255301	0.760395778255301	0.000000000000000	-0.000000000000000	-0.000000000000000	0.000000000000015
11	0.760395778255301	0.760395778255301	0.760395778255301	-0.000000000000000	-0.000000000000000	0.000000000000000	0.000000000000015
12	0.760395778255301	0.760395778255301	0.760395778255301	0.000000000000000	-0.000000000000000	-0.000000000000000	0.000000000000015
13	0.760395778255301	0.760395778255301	0.760395778255301	-0.000000000000000	-0.000000000000000	0.000000000000000	0.000000000000015
14	0.760395778255301	0.760395778255301	0.760395778255301	0.000000000000000	-0.000000000000000	-0.000000000000000	0.000000000000015
15	0.760395778255301	0.760395778255301	0.760395778255301	-0.000000000000000	-0.000000000000000	0.000000000000000	0.000000000000015
16	0.760395778255301	0.760395778255301	0.760395778255301	0.000000000000000	-0.000000000000000	-0.000000000000000	0.000000000000015
17	0.760395778255301	0.760395778255301	0.760395778255301	-0.000000000000000	-0.000000000000000	0.000000000000000	0.000000000000015
18	0.760395778255301	0.760395778255301	0.760395778255301	0.000000000000000	-0.000000000000000	-0.000000000000000	0.000000000000015
19	0.760395778255301	0.760395778255301	0.760395778255301	-0.000000000000000	-0.000000000000000	0.000000000000000	0.000000000000015
20	0.760395778255301	0.760395778255301	0.760395778255301	0.000000000000000	-0.000000000000000	-0.000000000000000	0.000000000000015
21	0.760395778255301	0.760395778255301	0.760395778255301	-0.000000000000000	-0.000000000000000	0.000000000000000	0.000000000000015
22	0.760395778255301	0.760395778255301	0.760395778255301	0.000000000000000	-0.000000000000000	-0.000000000000000	0.000000000000015
23	0.760395778255301	0.760395778255301	0.760395778255301	-0.000000000000000	-0.000000000000000	0.000000000000000	0.000000000000015
24	0.760395778255301	0.760395778255301	0.760395778255301	0.0000000			

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resumen :
valor x2 = 0.7603957782553008 valor f(x2)= -0.0000000000000000 valor ERP = 0.0000000000000015
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Nota: Convertir/compilar este archivo a PDF y subirlo a la carpeta 1103 junto con los programas de tabular y el del método de la secante.
Vence 03/nov

