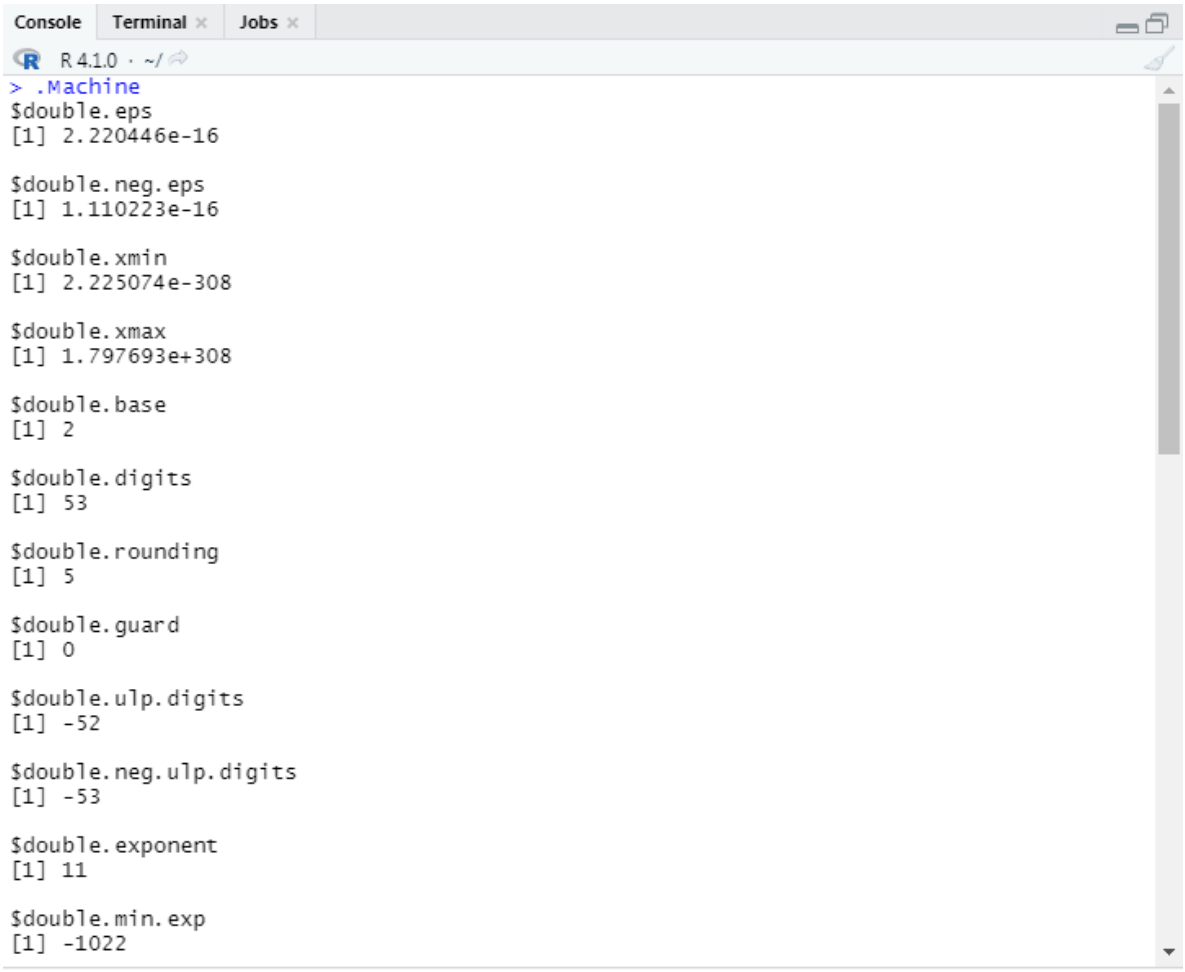
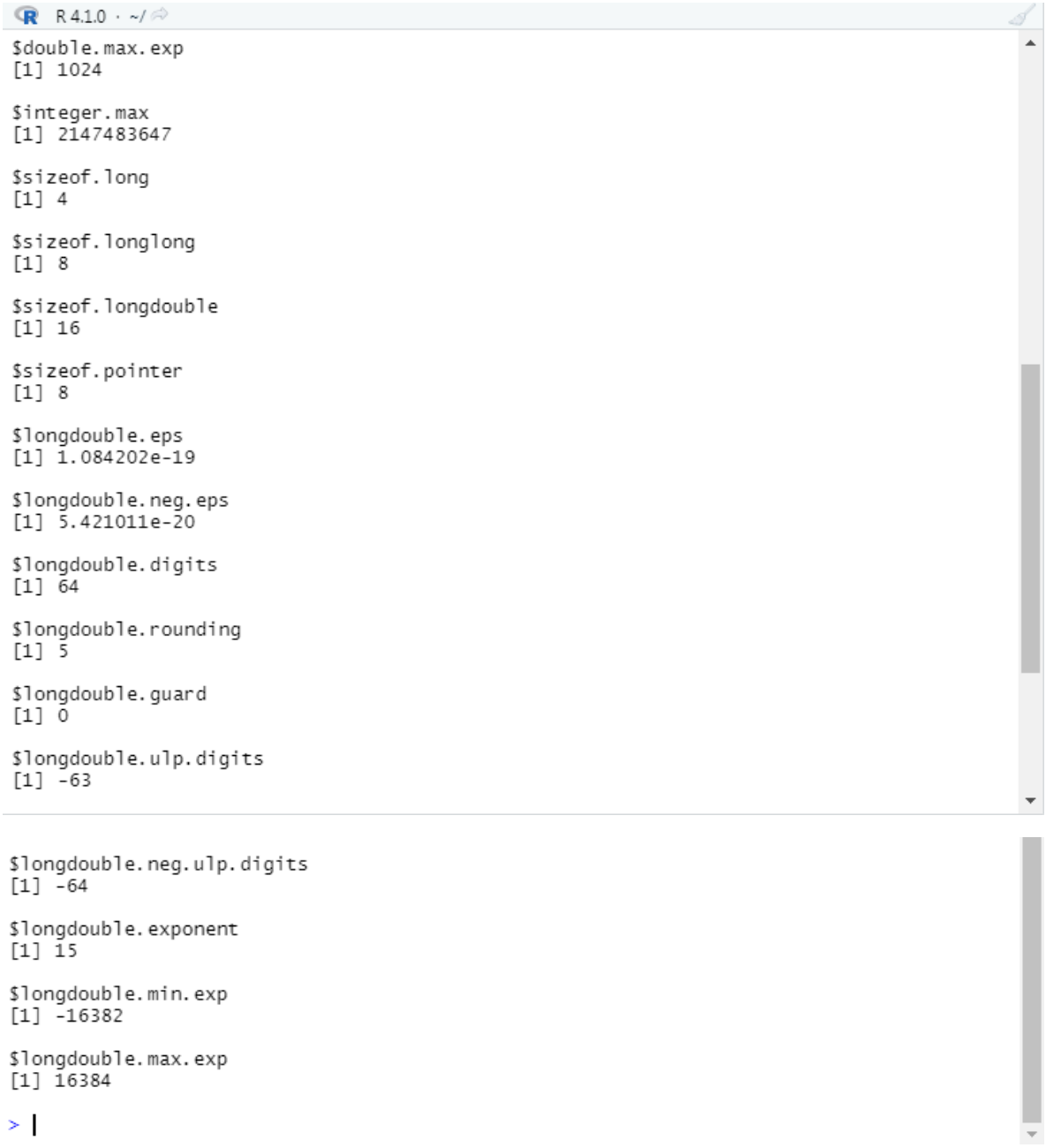
PARCIAL NUMERICO

DATOS DE MI EPSILON:




R 4.1.0 · ~/
$double.max.exp
[1] 1024
$integer.max
[1] 2147483647
$sizeof.long
[1] 4
$sizeof.longlong
[1] 8
$sizeof.longdouble
[1] 16
$sizeof.pointer
[1] 8
$longdouble.eps
[1] 1.084202e-19
$longdouble.neg.eps
[1] 5.421011e-20
$longdouble.digits
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$longdouble.rounding
[1] 5
$longdouble.guard
[1] 0
$longdouble.ulp.digits
[1] -63
$longdouble.neg.ulp.digits
[1] -64
$longdouble.exponent
[1] 15
$longdouble.min.exp
[1] -16382
$longdouble.max.exp
[1] 16384
>

PUNTO1F:

wolframalpha.com/input/?i=x%5E3%2B2x%2B√%286%2B2%29

Input

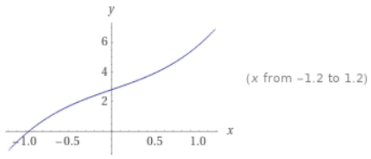
$$x^3 + 2x + \sqrt{6+2}$$

Result

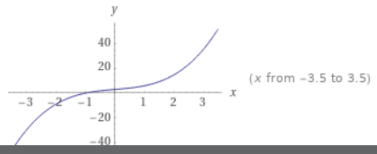
Step-by-step solution

$$x^3 + 2x + 2\sqrt{2}$$

Plots



(x from −1.2 to 1.2)



(x from −3.5 to 3.5)

8:01 a.m.
27/08/2021

wolframalpha.com/input/?i=x%5E3%2B2x%2B√%286%2B2%29

(x from −3.5 to 3.5)

Alternate form

$$x\left(x^2 + 2\right) + 2\sqrt{2}$$

Real root

More digits | Exact form | Step-by-step solution

$$x \approx -0.96496$$

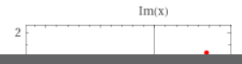
Complex roots

Enlarge | Data | Customize | Plain Text

$$x \approx 0.4825 - 1.6427\,i$$

$$x \approx 0.4825 + 1.6427\,i$$

Roots in the complex plane



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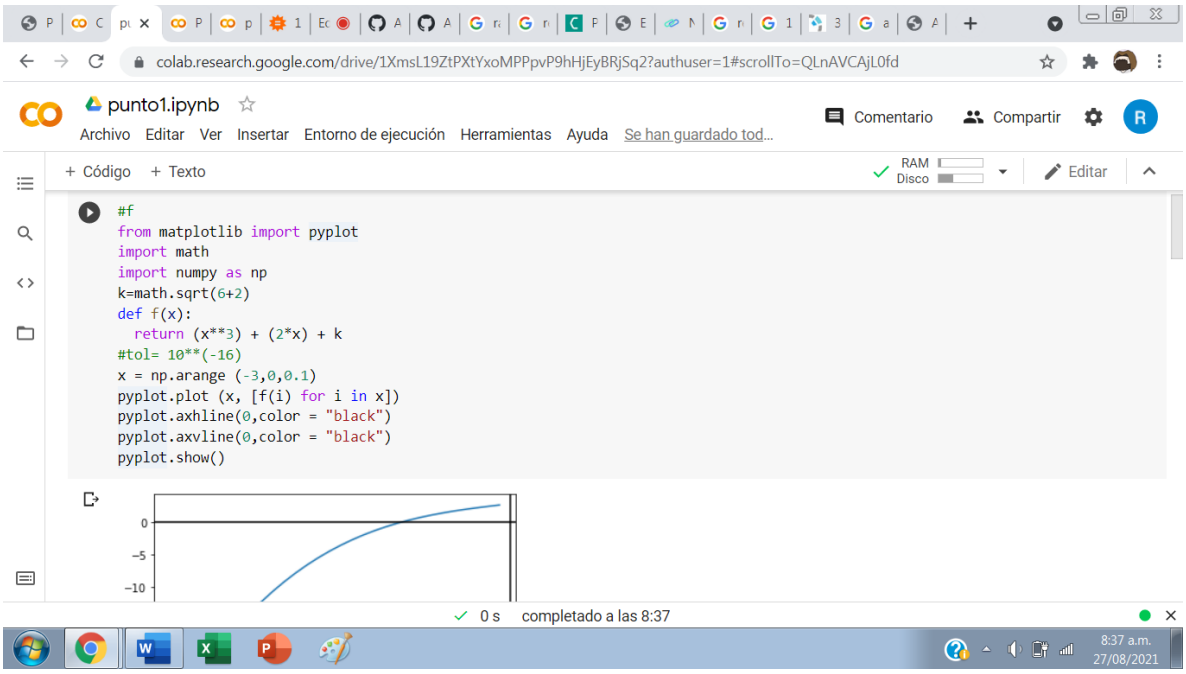
colab.research.google.com/drive/1XmsL19ZtPXtYxoMPPpvP9hHjEyBRjSq2?authuser=1#scrollTo=QLnAVCAjL0fd
punto1.ipynb
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#f
from matplotlib import pyplot
import math
import numpy as np
k=math.sqrt(6+2)
def f(x):
return (x**3) + (2*x) + k
#tol= 10**(-16)
x = np.arange (-3,0,0.1)
pyplot.plot (x, [f(i) for i in x])
pyplot.axhline(0,color = "black")
pyplot.axvline(0,color = "black")
pyplot.show()
0
−5
−10
0 s completado a las 8:37
8:37 a.m.
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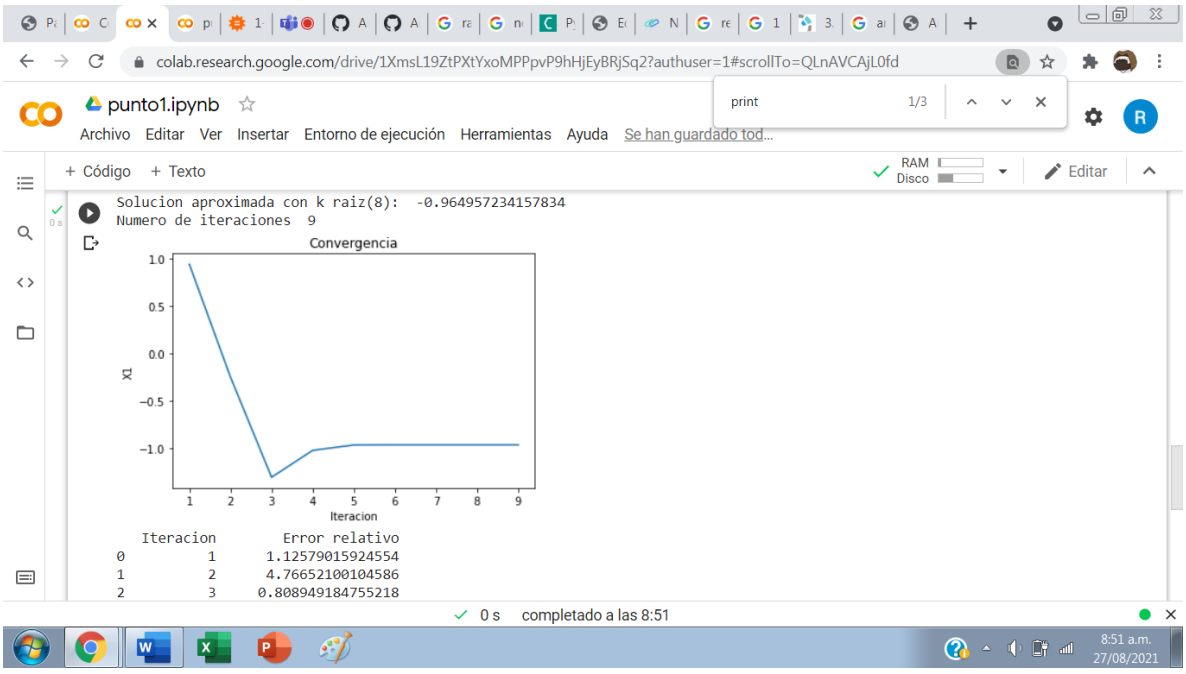
colab.research.google.com/drive/1XmsL19ZtPXtYxoMPPpvP9hHjEyBRjSq2?authuser=1#scrollTo=QLnAVCAjL0fd
print 1/3
punto1.ipynb
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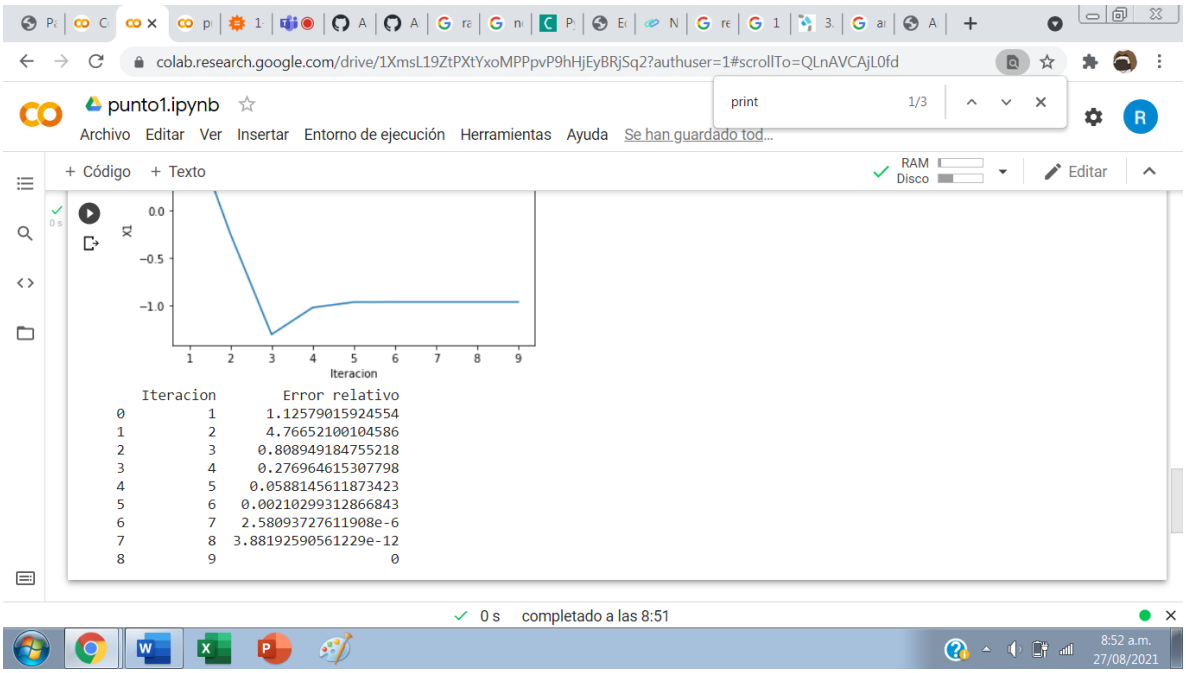
Solucion aproximada con k raiz(8): -0.964957234157834
Numero de iteraciones 9
Convergencia
x1
Iteracion
1.0
0.5
0.0
−0.5
−1.0
1 2 3 4 5 6 7 8 9
Iteracion Error relativo
0 1 1.12579015924554
1 2 4.76652100104586
2 3 0.808949184755218
0 s completado a las 8:51
8:51 a.m.
27/08/2021


colab.research.google.com/drive/1XmsL19ZtPXtYxoMPPpvP9hHjEyBRjSq2?authuser=1#scrollTo=QLnAVCAjL0fd
print 1/3
punto1.ipynb
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Iteracion
Iteracion Error relativo
0 1 1.12579015924554
1 2 4.76652100104586
2 3 0.808949184755218
3 4 0.276964615307798
4 5 0.0588145611873423
5 6 0.00210299312866843
6 7 2.58093727611908e-6
7 8 3.88192590561229e-12
8 9 0
0 s completado a las 8:51
8:52 a.m.
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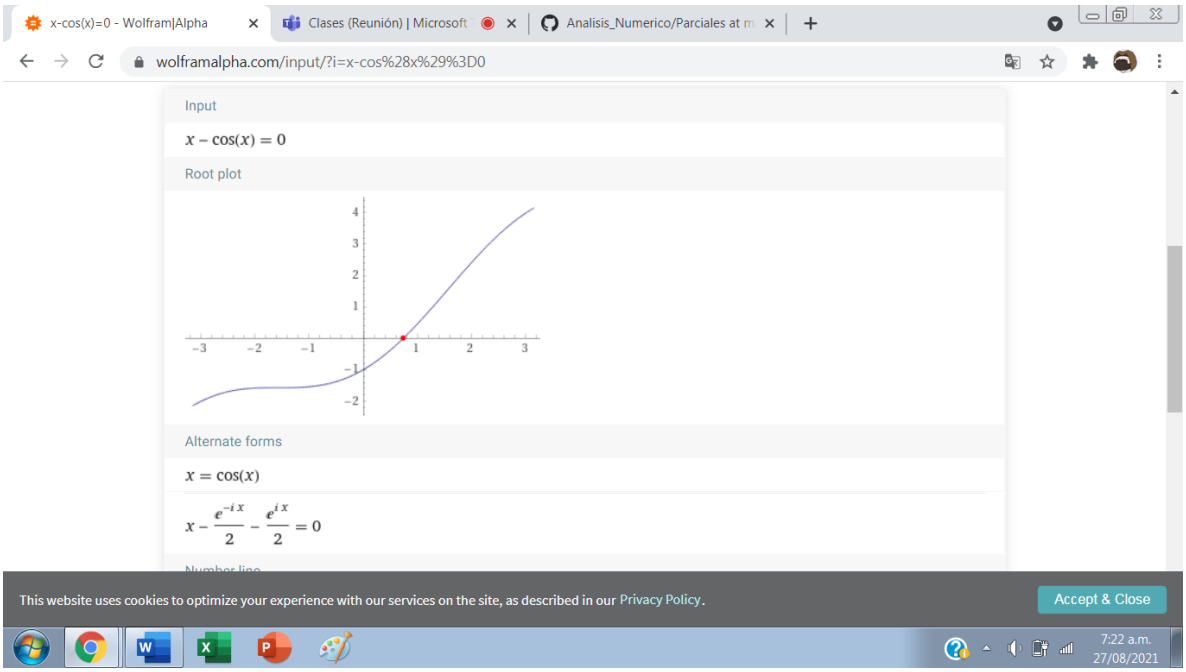
PUNTO 3B:


x-cos(x)=0 - Wolfram|Alpha
Clases (Reunión) | Microsoft
Analisis_Numerico/Parciales at m
wolframalpha.com/input/?i=x-cos%28x%29%3D0
Input
$x - \cos(x) = 0$
Root plot
Alternate forms
$x = \cos(x)$
$x - \frac{e^{-ix}}{2} - \frac{e^{ix}}{2} = 0$
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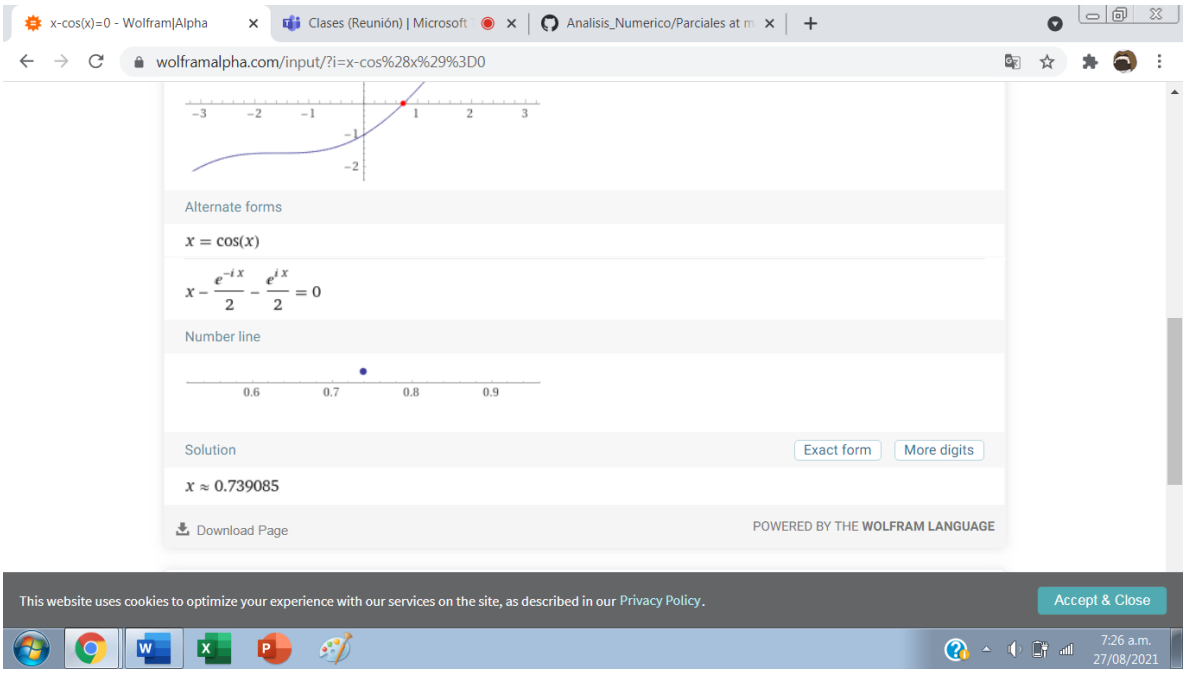
x-cos(x)=0 - Wolfram|Alpha
Clases (Reunión) | Microsoft
Analisis_Numerico/Parciales at m
wolframalpha.com/input/?i=x-cos%28x%29%3D0
Alternate forms
$x = \cos(x)$
$x - \frac{e^{-ix}}{2} - \frac{e^{ix}}{2} = 0$
Number line
Solution
Exact form
More digits
$x \approx 0.739085$
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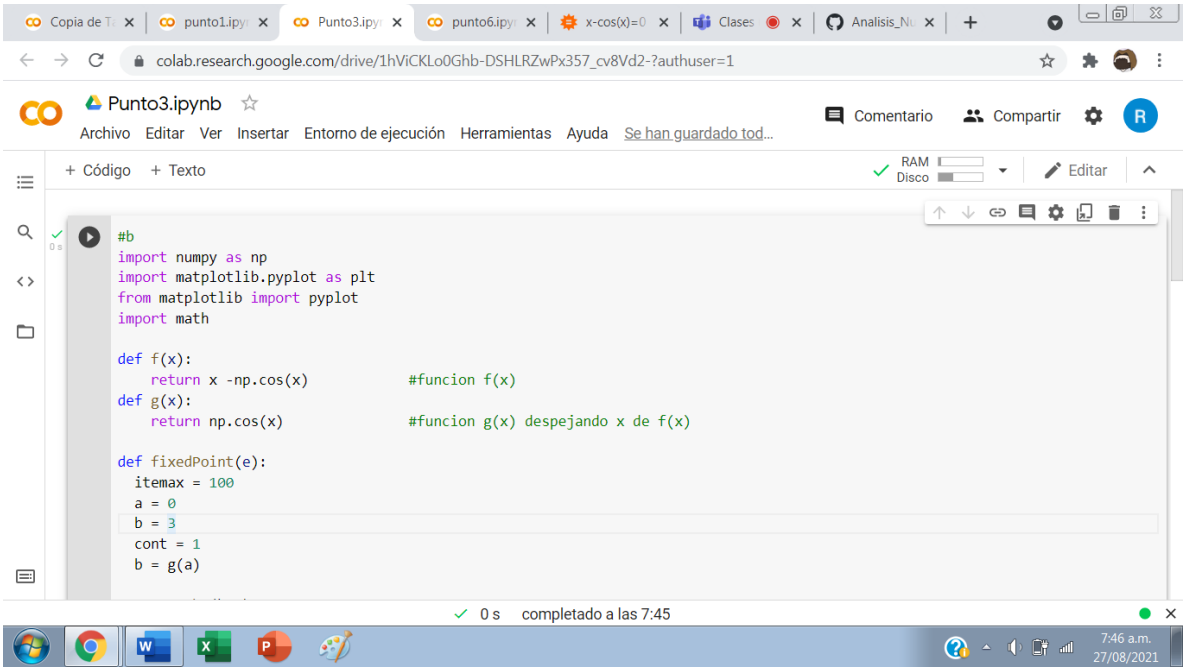
colab.research.google.com/drive/1hViCKLo0Ghb-DSHLRZwPx357_cv8Vd2-?authuser=1
Punto3.ipynb
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#b
import numpy as np
import matplotlib.pyplot as plt
from matplotlib import pyplot
import math
def f(x):
return x -np.cos(x) #funcion f(x)
def g(x):
return np.cos(x) #funcion g(x) despejando x de f(x)
def fixedPoint(e):
itemax = 100
a = 0
b = 3
cont = 1
b = g(a)
0 s completado a las 7:45
7:46 a.m.
27/08/2021


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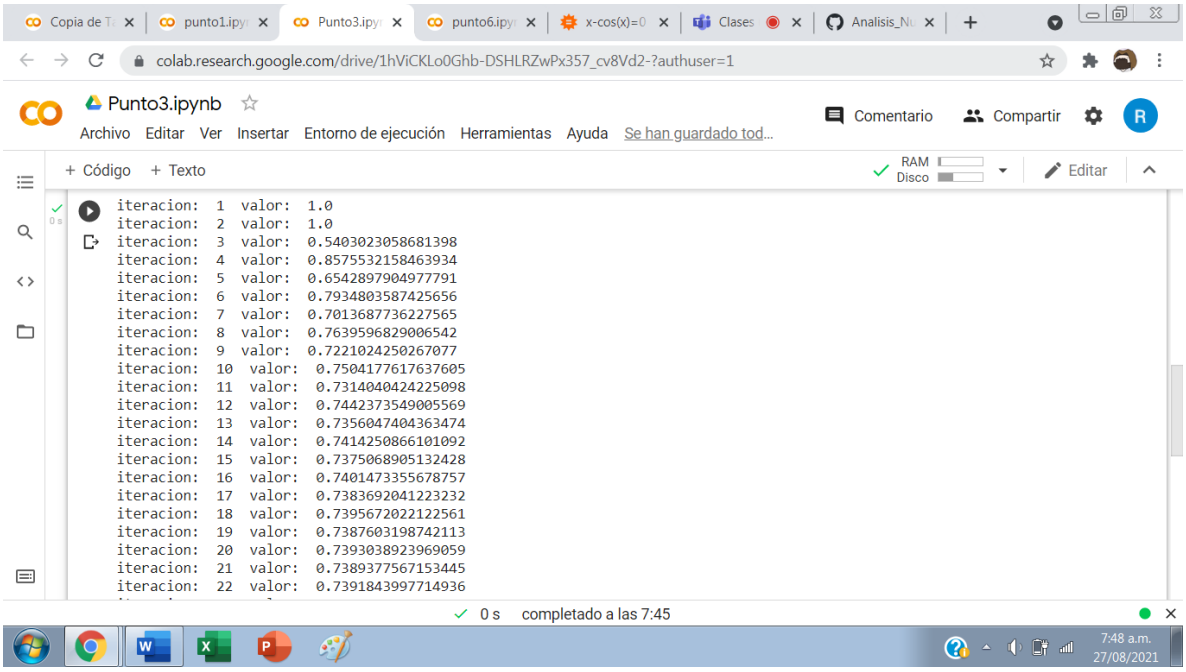
cont = 1
b = g(a)
err = abs(b-a)
while (err >= e and cont< itemax):
print("iteracion: ",cont," valor: ",b)
b = g(a)
err = abs(b-a)
a=b
cont+=1
if (cont>=itemax):
print("diver")
else:
print("ITERACIONES: ",cont-1)
return b
print("respuesta: ",fixedPoint(1e-5))
0 s completado a las 7:45
7:47 a.m.
27/08/2021

Resultados:


Punto3.ipynb
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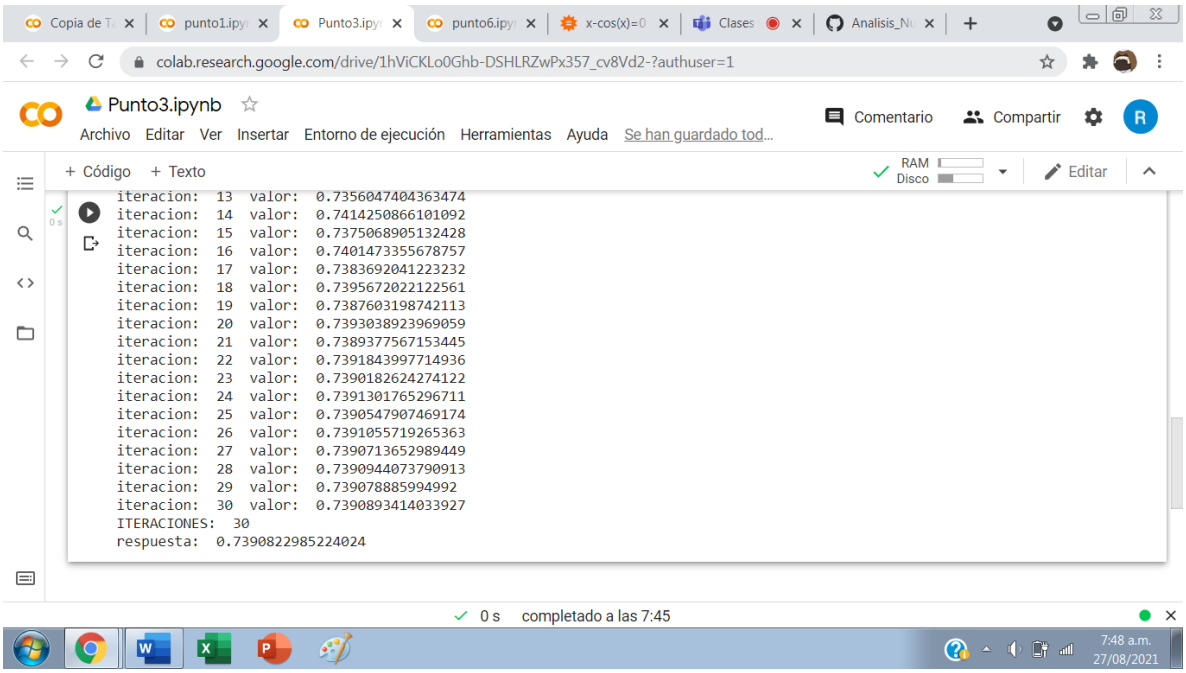
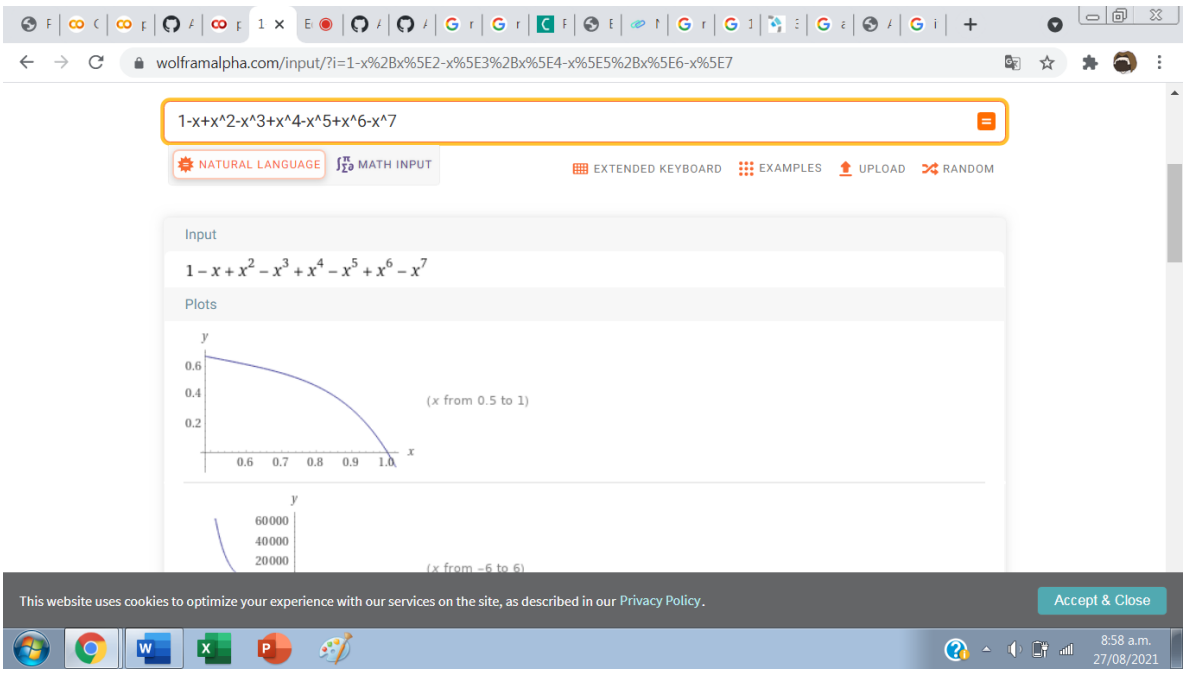
iteracion: 1 valor: 1.0
iteracion: 2 valor: 1.0
iteracion: 3 valor: 0.5403023058681398
iteracion: 4 valor: 0.8575532158463934
iteracion: 5 valor: 0.6542897904977791
iteracion: 6 valor: 0.7934803587425656
iteracion: 7 valor: 0.7013687736227565
iteracion: 8 valor: 0.7639596829006542
iteracion: 9 valor: 0.7221024250267077
iteracion: 10 valor: 0.7504177617637605
iteracion: 11 valor: 0.7314040424225098
iteracion: 12 valor: 0.7442373549005569
iteracion: 13 valor: 0.7356047404363474
iteracion: 14 valor: 0.7414250866101092
iteracion: 15 valor: 0.7375068905132428
iteracion: 16 valor: 0.7401473355678757
iteracion: 17 valor: 0.7383692041223232
iteracion: 18 valor: 0.7395672022122561
iteracion: 19 valor: 0.7387603198742113
iteracion: 20 valor: 0.7393038923969059
iteracion: 21 valor: 0.7389377567153445
iteracion: 22 valor: 0.7391843997714936
0 s completado a las 7:45
7:48 a.m.
27/08/2021



Toma 30 iteraciones para cumplir en su al quedar 0.7390**8**

PUNTO 6:



1-x+x^2-...x^n


punto6.ipynb
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Conectar
Editar
def p(x):
cont=0
print(cont)
while (cont<99):#llegar hasta el exp 99
#se supone es un ciclo para dar el exponente contador a c intercalando si x es positivo o negativo
if (cont%2==0) :
#x**cont
p=x**cont
cont+=1
print(cont,": ",p)
else:#impar
#-x**cont
ip=-x**cont
cont+=1
print(cont,": ",ip)
print("x= 1.001")
p(1.001)
#no me alcanzo el tiempo
9:09 a.m.
27/08/2021