

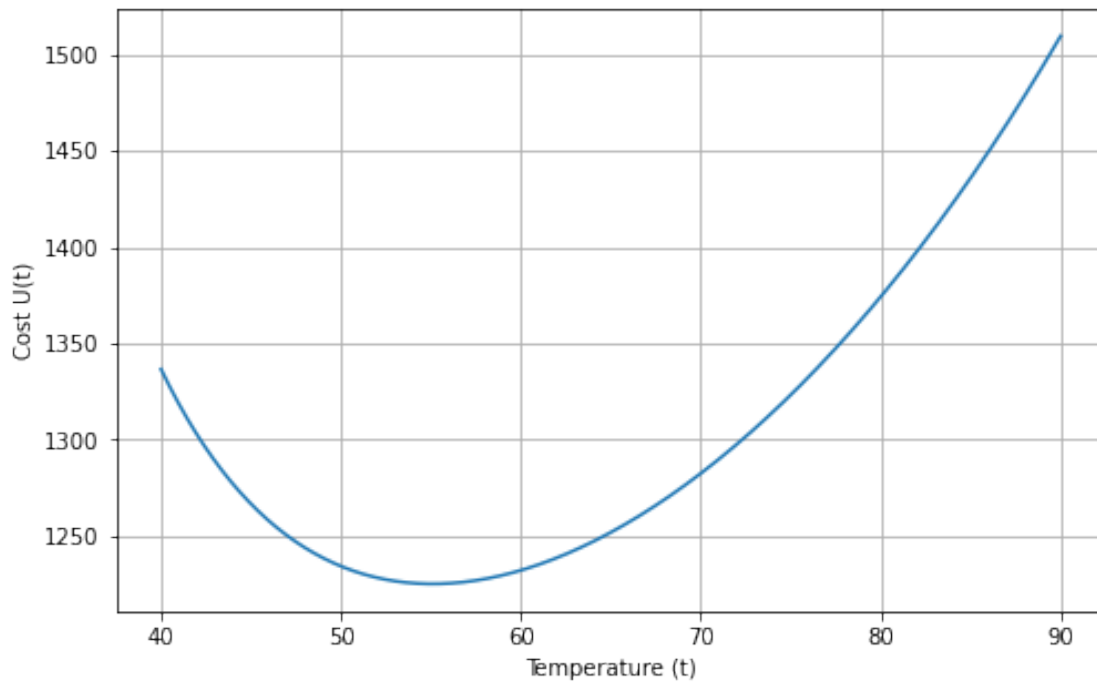
ComparativaMetodos

March 16, 2022

Comparativa entre métodos para encontrar mínimos de una función 1D

```
[ ]: from matplotlib import pyplot as plt
import numpy as np
from time import time
import math

[ ]: #Definición de la función:
U = lambda t: ((204165.5)/(330-2*t)+(10400/(t-20)))
t = np.linspace(40,90,10000)
fu = U(t)
fig1 = plt.figure(figsize=(8,5))
plt.plot(t,fu)
plt.xlabel('Temperature (t)')
plt.ylabel('Cost U(t)')
plt.grid(True)
plt.show()
```



Newton Rapson

```
[ ]: def NewtonRapson():
    DerivadaAproximada = lambda x, dx: (U(x+dx)-U(x-dx))/(2*dx)
    dx = 0.01
    dan = DerivadaAproximada(t,dx)

    #Metodo de Newton-Raphson
    f = U #Funcion original
    Derivada1Aproximada = lambda x, dx: (f(x+dx)-f(x-dx))/(2*dx) #Derivada
    →aproximada
    Derivada2Aproximada = lambda x, dx: (f(x+dx)-2*f(x)+f(x-dx))/(dx**2)
    →#Derivada aproximada
    dx = 0.01 #valor delta para aproximacion de la delta
    x1 = 40 #Punto de partida
    pasosMax = 100
    epsilon = 0.0001 #Definimos un epsilon, para checar el valor aumenta o no
    #print(xi) #Imprimir el punto x1
    i = 0

    #fig1, ax = plt.subplots(2)
    #print("xi\t\tf(xi)\t\ttdx(xi)\t\ttd2x(xi)")

    while(True):
        tan = f(x1)+Derivada1Aproximada(x1,dx)*(t-x1)
        # ax[0].cla()
        # ax[1].cla()
        # ax[0].plot(t,fu)
        # ax[0].plot(t,tan)
        # ax[0].plot(55.08352958,1225.16563688, marker="o", color="blue")
        # #ax[0].xlabel('Temperature (t)')
        # #ax[0].ylabel('Cost U(t)')
        # ax[0].grid(True)

        # ax[0].plot(x1,f(x1), marker="o", color="red")

        # ax[1].grid(True)
        # ax[1].plot(t,Derivada1Aproximada(t,dx),color="cyan")
        # ax[1].plot(x1,Derivada1Aproximada(x1,dx), marker="o", color="red")

        # plt.pause(2.8)

        # print("{:.8f}\t{:.8f}\t{:.8f}\t{:.8f}".format(x1, f(x1),
    →Derivada1Aproximada(x1,dx), Derivada2Aproximada(x1,dx)))
        #evaluamos si el denominador de la fraccion nos da 0
```

```

    if(Derivada2Aproximada(x1,dx)==0):
        print("Error Matematico hay division entre cero")
        break

    #Newton-Rapshon
    xi = x1 - Derivada1Aproximada(x1,dx)/Derivada2Aproximada(x1,dx)
    ↪ #Formula de  $x_{n+1} = x_n - f(x_n)/f'(x_n)$  si  $f'(x_n)$  diferente de 0

    #No convergio el algoritmo
    i = i + 1
    if(i>pasosMax):
        print('No convergio')
        break

    #Error Tolerable
    #Evaluamos si la diferencia entre el valor del punto actual X respecto
    ↪ a epsilon es menor que epsilon
    if(abs(xi-x1)<epsilon): #Evaluamos si hay o no cambio significativo
    ↪ abs(xactual - xanterior)<=epsilon
        #print(xi) #Imprimir el valor final de la raiz
        break
    x1 = xi #actualizamos el x1 ahora

    print("T=",x1)
    print("U(t)=",U(x1))
    print("Iteraciones: %d" % i)

plt.show()

```

Secante

```

[ ]: def Secante():
    f = U
    dx = 0.01 #valor delta para aproximacion de la delta
    x0 = 40 #Punto de partida
    x1= 90
    #t = np.linspace(40,90,500)
    ft = f(t)
    # fig1 = plt.figure(figsize=(8,5))
    # plt.plot(t,ft)
    danalitica = lambda x: (91682.75*x*x - 651310*x - 242306900)/
    ↪ ((x-20)**2)*((x-165)**2)
    daprox = lambda x, dx: (f(x+dx)-f(x-dx))/(2*dx) ###

    fd1 = daprox(t,dx)

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y_fd1 = danalitica(t)

# plt.plot(t,fd1)
# plt.plot(t,y_fd1)
pasosMax = 100
error = 0.0001
#start_time = time()
i = 0

while(True):

    if(daprox(x1,dx)==0):
        #print("Estas en el minimo")
        break

    #secante
    xi = x1 - daprox(x1,dx)*(x0-x1)/(daprox(x0,dx)-daprox(x1,dx)) #Formula

    i = i + 1
    if(i>pasosMax):
        print('No convergio')
        break

    if(abs(xi-x1)<error):

        break
    x0 = x1
    x1 = xi #actualizamos el x1 ahora

#elapsed_time = (time() - start_time)*1000
# print("Tiempo transcurrido: %f ms" % elapsed_time)
# print("Iteraciones: %f " % i)
print("Valor x1: %f " % x1)
print("Valor x0: %f " % x0)
print("U(t)=",U(x1))
# plt.plot(t,ft)
# plt.plot(x1,f(x1), marker="o", color="red")

```

Fuerza Bruta

```

[ ]: def FuerzaBruta():
    #startTime = time() #Para evaluar el tiempo de cómputo
    min=np.Infinity     #Empezar por un valor grande
    tiempo = 0

```

```

for i in t:
    if U(i)<min:
        min = U(i)
        tiempo = i

#elapsedTime=(time()-startTime)*1000
#print("Tiempo transcurrido = " + str(elapsedTime))
#print("x= ",min)
print("T = ",tiempo)
print("U(t)=",U(tiempo))

```

Polinomial Cúbico

```

[ ]: def PolynomialCub():
    def d_C (x, deltax):
        a_c = (U(x+deltax)-U(x-deltax))/(2*deltax)
        return a_c
    def alpha (x1,x2):
        a = (x1 + x2)/2
        return a
    x1= 40
    x2= 90
    e = 0.0001
    deltax= 0.01
    al = alpha(x1,x2)
    step = 0
    #start_time = process_time_ns()
    #definir los nuevos puntos con alpha
    #while True:
    #    step+=1
    #    if d_C(x1,deltax) * d_C( al, deltax) < 0:
    #        x2 = al
    #        break
    #    else:
    #        x1 = al
    #    al = alpha(x1,x2)

    while True:
        step+=1
        #calcular las funciones y derivadas en los respectivos puntos
        fa = U(x1)
        fb = U(x2)
        da = d_C(x1,deltax)
        db = d_C(x2,deltax)

        #Caclcular z y w para obtener u
        z = (3 * (fa-fb) )/ (x2- x1) + (da + db)

```

```

w = (x2-x1)/ np.abs(x2-x1) + (np.sqrt(z**2 - (da * db)))
u = (db + w -z)/ (db - da + (2*w))

xm = 0
#evaluar u para obtener valor minimo
if u < 0:
    xm = x2
else:
    if 0 <= u and u <= 1:
        xm = x2- u*(x2-x1)
    else:
        xm = x1

#calcular la derivada del valor minimo para saber si convergió
dxm = d_C(xm,deltax)
if np.abs(dxm) < e:
    #print('Convergió')
    break
if da * dxm < 0:
    x2 = xm
else:
    x1 = xm

#elapsed_time = (process_time_ns() - start_time)
print('T: ',xm)
print("U(t)=",U(xm))
print('Pasos: ', step)
#print('f(x*): ', U(xm))
#print("Tiempo transcurrido: %f ns" % elapsed_time)
# x = np.arange(40,90)
# fig1 = plt.figure(figsize=(8,5))
# plt.plot(x,U(x))
# plt.plot(xm,U(xm), marker="o", color="green")
# plt.grid(True)
# plt.title('Método Ajuste')
# plt.xlabel('Temperatura (t)')
# plt.ylabel('Costo U(t)')

```

Sección Dorada

```

[ ]: def SecciónDorada():
    f = U
    dx = 0.01 #valor delta para aproximacion de la delta

    #t = np.linspace(40,90,500)
    ft = f(t)
    # fig1 = plt.figure(figsize=(8,5))

```

```

# plt.plot(t,ft)

pasosMax = 30
E = 0.0001
aurea = 0.6180339
xL = 40 #Punto de partida
xU = 90

for i in range(pasosMax):
    d = aurea*(xU-xL)
    x2 = xL+d
    x1 = xU-d
    if f(x1)<f(x2):
        xL = xL
        xU = x2
    else:
        xU=xU
        xL=x1

    #print("d=",d,"\\nx1=",x1,"\\nx2=",x2,"\\nxU=",xU,"\\nxL",xL)

    #Si el delta es cercano a un valor de tolerancia detener el ciclo
    if d<=E:
        break

print("d=",d,"\\nx1=",x1,"\\nx2=",x2)
print("U(t)=",U(x1))

```

```

[ ]: def Test(Método):
    start_time = time()
    Método()
    elapsed_time = (time() - start_time)
    class bcolors:
        HEADER = '\\033[95m'
        OKBLUE = '\\033[94m'
        OKCYAN = '\\033[96m'
        OKGREEN = '\\033[92m'
        WARNING = '\\033[93m'
        FAIL = '\\033[91m'
        ENDC = '\\033[0m'
        BOLD = '\\033[1m'
        UNDERLINE = '\\033[4m'

    print("Tiempo transcurrido: ",bcolors.OKGREEN,elapsed_time,bcolors.ENDC)
    #print("Tiempo transcurrido: ",elapsed_time)
    return elapsed_time

```

```
[ ]: Methods = [FuerzaBruta,NewtonRapson,Secante,PolynomialCub,SecciónDorada]
Tiempos = {}
for m in Methods:
    print(m.__name__,":")
    tiempo = Test(m)
    Tiempos[m.__name__]=tiempo
    print()

fig1=plt.figure(figsize = (10,10))
plt.bar(range(len(Tiempos)), list(Tiempos.values()), align='center');
plt.xticks(range(len(Tiempos)), list(Tiempos.keys()));
```

FuerzaBruta :

T = 55.08150815081508

U(t)= 1225.1656381760192

Tiempo transcurrido: 0.025164127349853516

NewtonRapson :

T= 55.08352957211418

U(t)= 1225.1656368790013

Iteraciones: 6

Tiempo transcurrido: 0.007096052169799805

Secante :

Valor x1: 55.083530

Valor x0: 55.083261

U(t)= 1225.1656368790016

Tiempo transcurrido: 0.006165981292724609

PolynomialCub :

T: 55.0836671507791

U(t)= 1225.165636885099

Pasos: 14

Tiempo transcurrido: 0.0011868476867675781

SecciónDorada :

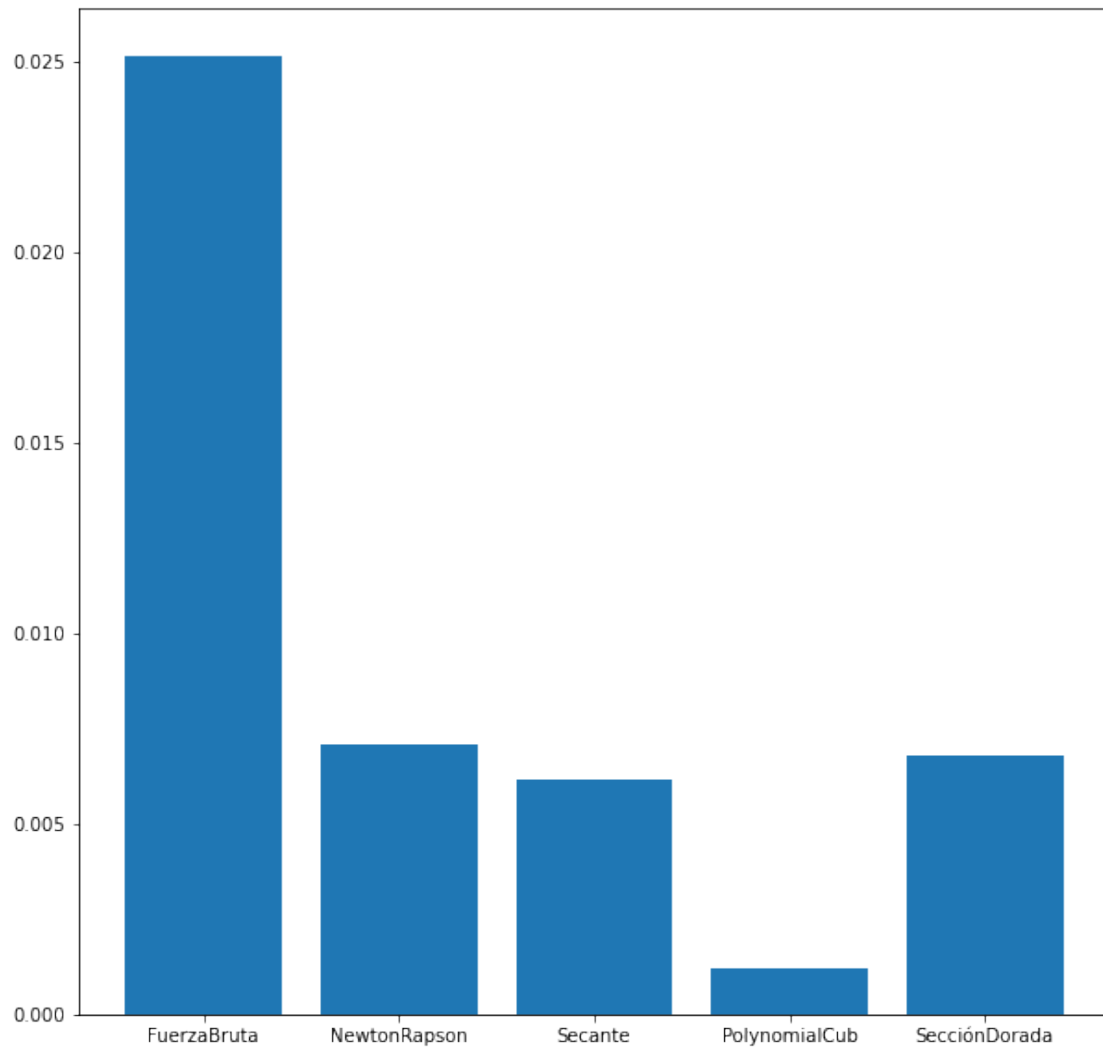
d= 7.035813696565955e-05

x1= 55.083505618262826

x2= 55.083532492663416

U(t)= 1225.1656368791691

Tiempo transcurrido: 0.006775856018066406



```
[ ]: for i in range(100):
      for m in Methods:
          tiempo = Test(m)
          Tiempos[m.__name__]=(tiempo+Tiempos[m.__name__])/2

fig1=plt.figure(figsize = (10,10))
plt.bar(range(len(Tiempos)), list(Tiempos.values()), align='center');
plt.xticks(range(len(Tiempos)), list(Tiempos.keys()));
```

```
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.028052091598510742
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
```

Tiempo transcurrido: 0.004276275634765625
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0008790493011474609
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0008535385131835938
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0008852481842041016
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03004908561706543
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0035636425018310547
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0006356239318847656
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.00642704963684082
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0030553340911865234
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.031029462814331055
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.002607107162475586
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0006930828094482422
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14

```

Tiempo transcurrido: 0.0012049674987792969
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.005807161331176758
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.030568838119506836
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0015239715576171875
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0007932186126708984
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0012848377227783203
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0013301372528076172
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.035952091217041016
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.003604888916015625
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0006210803985595703
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0008416175842285156
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0011167526245117188
T = 55.08150815081508
U(t)= 1225.1656381760192

```

Tiempo transcurrido: 0.032784223556518555
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.003064870834350586
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007231235504150391
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0007693767547607422
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0011696815490722656
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.033107757568359375
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004258632659912109
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007724761962890625
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0010504722595214844
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.009279251098632812
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.02559518814086914
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004630327224731445
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016

Tiempo transcurrido: 0.0006334781646728516
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0005426406860351562
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0008618831634521484
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.037046194076538086
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.003409147262573242
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0011868476867675781
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0008215904235839844
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0011012554168701172
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03370952606201172
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004082202911376953
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0008394718170166016
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009837150573730469
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416

```

U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0012841224670410156
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.03133392333984375
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0037641525268554688
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0017650127410888672
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0010266304016113281
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0011010169982910156
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.03302741050720215
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0058307647705078125
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0012934207916259766
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.006666660308837891
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.004282236099243164
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.0260009765625
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6

```

Tiempo transcurrido: 0.005638599395751953
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0008599758148193359
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.001168966293334961
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0012845993041992188
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.033295631408691406
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004810810089111328
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0008466243743896484
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0017018318176269531
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.005332231521606445
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.02401256561279297
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004936695098876953
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.000667572021484375
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14

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Tiempo transcurrido: 0.0048944950103759766
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0025701522827148438
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.02402520179748535
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.004120826721191406
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.004313468933105469
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.004372835159301758
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.005857229232788086
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.025212526321411133
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0013353824615478516
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0008556842803955078
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0010457038879394531
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0006575584411621094
T = 55.08150815081508
U(t)= 1225.1656381760192

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Tiempo transcurrido: 0.029422998428344727
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0035490989685058594
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0010688304901123047
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.003587484359741211
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0005693435668945312
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.02872490882873535
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0018987655639648438
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007307529449462891
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009152889251708984
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0011408329010009766
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.030733823776245117
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.003450632095336914
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016

Tiempo transcurrido: 0.003223419189453125
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009431838989257812
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0010979175567626953
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03155016899108887
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0036530494689941406
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.006330966949462891
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0026428699493408203
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0011112689971923828
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.030242919921875
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.005991458892822266
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0036919116973876953
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.003683328628540039
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416

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U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0015583038330078125
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.023807048797607422
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0034363269805908203
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0006849765777587891
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0009310245513916016
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0010292530059814453
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.0377652645111084
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.003526449203491211
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0009057521820068359
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0011811256408691406
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.006453752517700195
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.030670881271362305
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6

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Tiempo transcurrido: 0.0039174556732177734
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0022721290588378906
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.005829811096191406
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.001074075698852539
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03350996971130371
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0039768218994140625
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.004803180694580078
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0027399063110351562
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0011360645294189453
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.0303652286529541
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.005406856536865234
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.000690460205078125
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14

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Tiempo transcurrido: 0.0009400844573974609
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0008020401000976562
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.03298354148864746
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.004125833511352539
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0019307136535644531
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0024001598358154297
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.002940654754638672
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.02441239356994629
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0031735897064208984
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0006372928619384766
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0008959770202636719
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0008828639984130859
T = 55.08150815081508
U(t)= 1225.1656381760192

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Tiempo transcurrido: 0.028567075729370117
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004772186279296875
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0048065185546875
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009467601776123047
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0025119781494140625
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.029585838317871094
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0027837753295898438
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007777214050292969
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.007704257965087891
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.003596782684326172
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.02618694305419922
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004585981369018555
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016

Tiempo transcurrido: 0.0009970664978027344
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.001312255859375
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.008470773696899414
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.02596259117126465
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.005382061004638672
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007450580596923828
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0015912055969238281
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.008889198303222656
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.02521514892578125
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0022089481353759766
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007765293121337891
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009140968322753906
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416

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U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0010197162628173828
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.034885406494140625
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.004102945327758789
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0033190250396728516
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0005853176116943359
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0007452964782714844
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.03714489936828613
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.004431962966918945
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.00109100341796875
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.00738072395324707
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0012423992156982422
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.02701711654663086
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6

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Tiempo transcurrido: 0.004457950592041016
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0006098747253417969
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0008962154388427734
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0026040077209472656
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.04607796669006348
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.003832101821899414
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.001314401626586914
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.007269144058227539
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0004999637603759766
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.04456329345703125
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004958629608154297
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0029554367065429688
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14

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Tiempo transcurrido: 0.0014142990112304688
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0017199516296386719
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.03702259063720703
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0018057823181152344
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0009243488311767578
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.004873037338256836
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0015370845794677734
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.03374528884887695
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.002871990203857422
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0019969940185546875
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0009696483612060547
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.000997781753540039
T = 55.08150815081508
U(t)= 1225.1656381760192

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Tiempo transcurrido: 0.026906251907348633
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004751443862915039
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.000843048095703125
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.00102996826171875
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.010175228118896484
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.024761438369750977
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.005532264709472656
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0009202957153320312
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0010082721710205078
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0012066364288330078
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.032219648361206055
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.005250215530395508
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016

Tiempo transcurrido: 0.0007331371307373047
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.002974987030029297
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0011324882507324219
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03287172317504883
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0054547786712646484
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0008723735809326172
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0010678768157958984
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.001146078109741211
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03582882881164551
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0031321048736572266
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0009760856628417969
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0010020732879638672
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416

U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0007359981536865234
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.045073509216308594
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0021212100982666016
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007150173187255859
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.005957126617431641
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.001119375228881836
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.0275576114654541
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.001794576644897461
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007903575897216797
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.008003473281860352
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0015232563018798828
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.02965235710144043
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6

Tiempo transcurrido: 0.0014185905456542969
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0004858970642089844
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.001018524169921875
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0010271072387695312
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.0346674919128418
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0024366378784179688
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0008578300476074219
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0011501312255859375
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.00128936767578125
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.0325627326965332
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.001978635787963867
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.006178140640258789
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14

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Tiempo transcurrido: 0.003198385238647461
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0014221668243408203
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.030066490173339844
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0032405853271484375
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0008530616760253906
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.006977081298828125
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0038640499114990234
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.026304960250854492
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0007839202880859375
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0009849071502685547
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0008196830749511719
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0007238388061523438
T = 55.08150815081508
U(t)= 1225.1656381760192

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Tiempo transcurrido: 0.02972722053527832
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.01087045669555664
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0025992393493652344
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0014464855194091797
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.001379251480102539
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03139543533325195
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.003276824951171875
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.001405954360961914
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0029578208923339844
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0011394023895263672
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.030124187469482422
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0043604373931884766
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016

Tiempo transcurrido: 0.0006966590881347656
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009028911590576172
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0010457038879394531
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03514909744262695
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.003582000732421875
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0006153583526611328
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0011370182037353516
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0011267662048339844
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03481626510620117
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.003440380096435547
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0006890296936035156
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0033631324768066406
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416

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U(t)= 1225.1656368791691
Tiempo transcurrido: 0.001001119613647461
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.027558088302612305
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.003135204315185547
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0008614063262939453
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.001024007797241211
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.011654138565063477
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.02390885353088379
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.007688045501708984
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0030829906463623047
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0007975101470947266
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0008003711700439453
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.0296328067779541
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6

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Tiempo transcurrido: 0.0036208629608154297
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.00047087669372558594
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009791851043701172
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0008473396301269531
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03270411491394043
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.003289461135864258
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0005600452423095703
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.002659320831298828
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0031082630157470703
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.025214433670043945
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0029556751251220703
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.001978635787963867
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14

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Tiempo transcurrido: 0.0010247230529785156
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0007970333099365234
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.03135561943054199
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0017392635345458984
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0014312267303466797
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.002547025680541992
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0006251335144042969
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.03726625442504883
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0017819404602050781
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0006163120269775391
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0027930736541748047
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.000804901123046875
T = 55.08150815081508
U(t)= 1225.1656381760192

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Tiempo transcurrido: 0.035483360290527344
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.00337982177734375
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.003979682922363281
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009675025939941406
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0012097358703613281
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.0299837589263916
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0055654048919677734
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0009143352508544922
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.001863718032836914
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0022449493408203125
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03690028190612793
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0049896240234375
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016

Tiempo transcurrido: 0.002148151397705078
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009653568267822266
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.00046896934509277344
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.029697179794311523
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.005813121795654297
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007848739624023438
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0017168521881103516
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0016219615936279297
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03177809715270996
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0031719207763671875
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0005910396575927734
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0030231475830078125
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416

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U(t)= 1225.1656368791691
Tiempo transcurrido: 0.005285978317260742
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.024199247360229492
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0021698474884033203
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.005613565444946289
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.003507852554321289
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0058803558349609375
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.026044845581054688
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.003154754638671875
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0007436275482177734
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0010170936584472656
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0009484291076660156
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.02505183219909668
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6

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Tiempo transcurrido: 0.004453182220458984
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0006389617919921875
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0006029605865478516
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.00074005126953125
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03059101104736328
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.002391815185546875
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0012421607971191406
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009410381317138672
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0010800361633300781
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.02619147300720215
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.005837202072143555
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0006766319274902344
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14


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Tiempo transcurrido: 0.0009510517120361328
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0012056827545166016
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.030704021453857422
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0034759044647216797
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.003336668014526367
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0058383941650390625
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0011162757873535156
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.022673368453979492
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0035321712493896484
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0012733936309814453
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0009477138519287109
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0013165473937988281
T = 55.08150815081508
U(t)= 1225.1656381760192

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Tiempo transcurrido: 0.03440117835998535
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.003907442092895508
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007517337799072266
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0010700225830078125
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0009913444519042969
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.033620357513427734
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004364967346191406
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0033082962036132812
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0008957386016845703
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0010313987731933594
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.029601573944091797
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004056453704833984
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016

Tiempo transcurrido: 0.0010862350463867188
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.005587339401245117
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.002791881561279297
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.02523207664489746
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004860639572143555
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007145404815673828
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0052640438079833984
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.004156589508056641
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.026204586029052734
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.002731800079345703
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0007190704345703125
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0007879734039306641
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416

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U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0006823539733886719
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.033165931701660156
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0035512447357177734
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.003202676773071289
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0009975433349609375
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.007169008255004883
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.025360584259033203
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.004446744918823242
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0007555484771728516
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0008759498596191406
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0009272098541259766
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.036484479904174805
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6

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Tiempo transcurrido: 0.005780696868896484
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.004570722579956055
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0010712146759033203
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0009665489196777344
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03297543525695801
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0025899410247802734
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0005564689636230469
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0007653236389160156
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0006513595581054688
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.025959491729736328
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0039958953857421875
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0029871463775634766
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14

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Tiempo transcurrido: 0.0009016990661621094
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0008561611175537109
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.03177237510681152
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.0031228065490722656
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0006830692291259766
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.001194000244140625
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.001294851303100586
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.03228473663330078
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.002740621566772461
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0006222724914550781
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.002547025680541992
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0010597705841064453
T = 55.08150815081508
U(t)= 1225.1656381760192

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Tiempo transcurrido: 0.03279709815979004
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004544258117675781
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0006425380706787109
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0006761550903320312
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0012981891632080078
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03492593765258789
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.005381107330322266
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0025730133056640625
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009338855743408203
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0011000633239746094
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03167867660522461
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.003416776657104492
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016

Tiempo transcurrido: 0.0006060600280761719
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009381771087646484
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0009686946868896484
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03611445426940918
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004015445709228516
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0008051395416259766
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0008924007415771484
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0010013580322265625
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.031218767166137695
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0029604434967041016
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0023107528686523438
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.001477956771850586
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416


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U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0014910697937011719
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.04533982276916504
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.006783246994018555
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0007152557373046875
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.0007390975952148438
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.011132240295410156
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.028522253036499023
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.001997709274291992
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0008203983306884766
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.001026153564453125
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0010454654693603516
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.03489351272583008
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6

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Tiempo transcurrido: 0.002185344696044922
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0005586147308349609
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009012222290039062
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.0008876323699951172
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.03381204605102539
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.004183769226074219
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0006072521209716797
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14
 Tiempo transcurrido: 0.0009069442749023438
 d= 7.035813696565955e-05
 x1= 55.083505618262826
 x2= 55.083532492663416
 U(t)= 1225.1656368791691
 Tiempo transcurrido: 0.00884556770324707
 T = 55.08150815081508
 U(t)= 1225.1656381760192
 Tiempo transcurrido: 0.02585887908935547
 T= 55.08352957211418
 U(t)= 1225.1656368790013
 Iteraciones: 6
 Tiempo transcurrido: 0.0034809112548828125
 Valor x1: 55.083530
 Valor x0: 55.083261
 U(t)= 1225.1656368790016
 Tiempo transcurrido: 0.0019011497497558594
 T: 55.0836671507791
 U(t)= 1225.165636885099
 Pasos: 14

Tiempo transcurrido: 0.0012950897216796875
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.0013735294342041016
T = 55.08150815081508
U(t)= 1225.1656381760192
Tiempo transcurrido: 0.032691240310668945
T= 55.08352957211418
U(t)= 1225.1656368790013
Iteraciones: 6
Tiempo transcurrido: 0.002984285354614258
Valor x1: 55.083530
Valor x0: 55.083261
U(t)= 1225.1656368790016
Tiempo transcurrido: 0.0017709732055664062
T: 55.0836671507791
U(t)= 1225.165636885099
Pasos: 14
Tiempo transcurrido: 0.001230478286743164
d= 7.035813696565955e-05
x1= 55.083505618262826
x2= 55.083532492663416
U(t)= 1225.1656368791691
Tiempo transcurrido: 0.001104593276977539

