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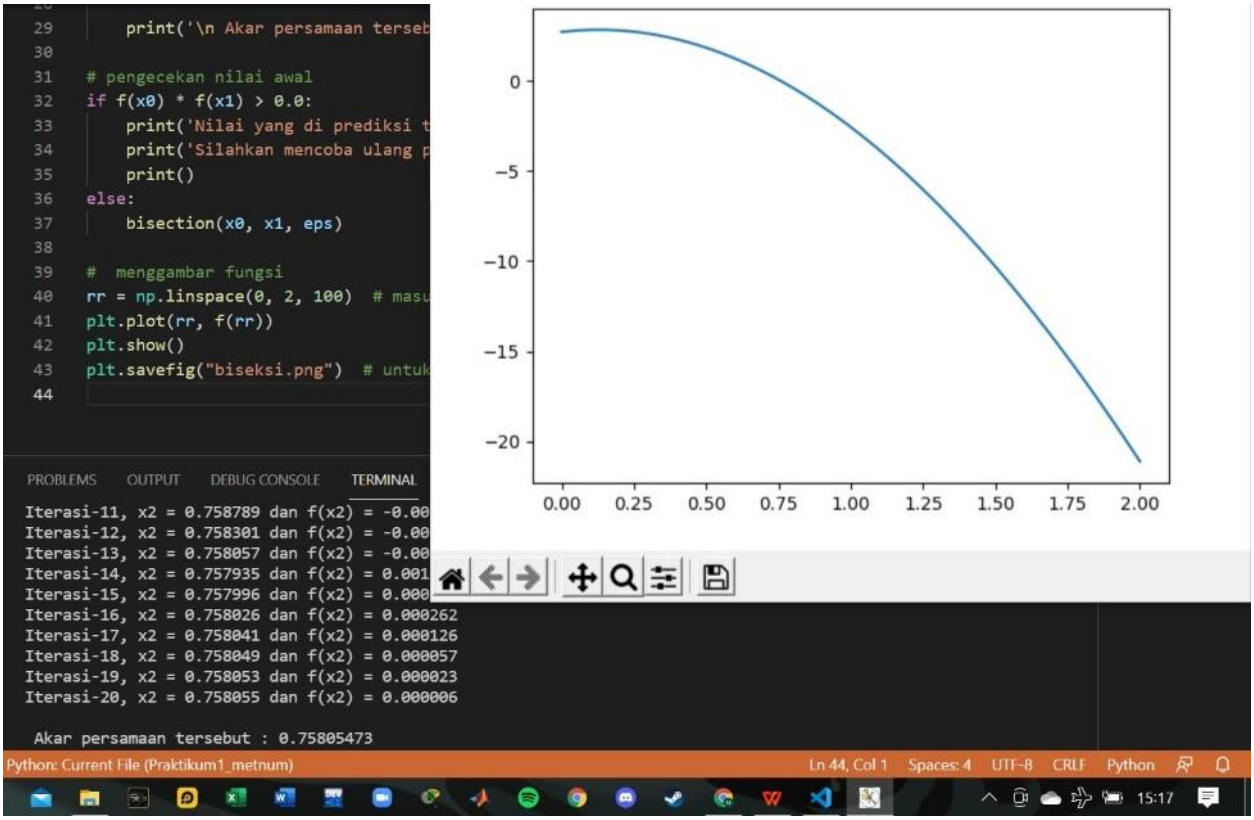
202010225183

PRAKTIKUM METODE NUMERIK

1.



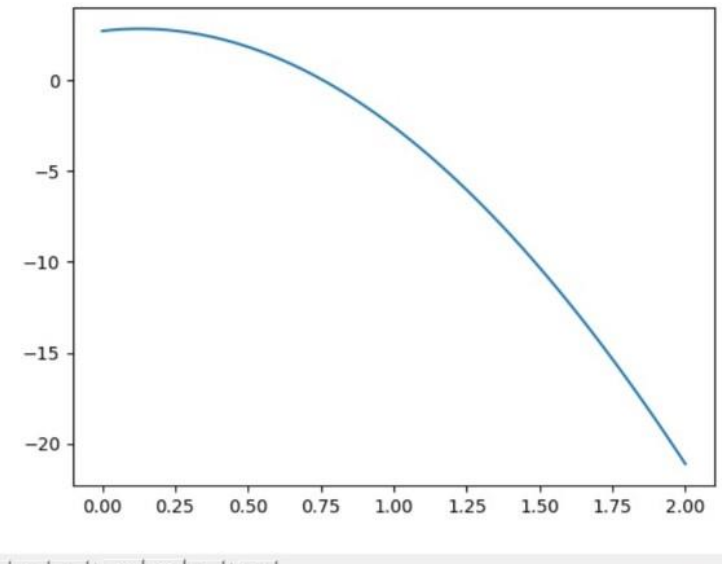
2.

```python
import numpy as np
import matplotlib.pyplot as plt
from math import e

#mendefinisikan fungsi
def f(x):
    return e*2**x-8*x**2

# sesi input nilai awal yang di kon
x0 = float(input('x0: '))
x1 = float(input('x1: '))
eps = float(input('epsilon: '))

# metode Regulafalsi
def regulafalse(x0, x1, eps):
    step = 1
    print('\n\n*** --Metode Regulaf
    condition = True
```




```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL
Iterasi-10, x2 = 0.756924 dan f(x2) = 0.010
Iterasi-11, x2 = 0.757519 dan f(x2) = 0.004
Iterasi-12, x2 = 0.757801 dan f(x2) = 0.002
Iterasi-13, x2 = 0.757935 dan f(x2) = 0.001
Iterasi-14, x2 = 0.757998 dan f(x2) = 0.000
Iterasi-16, x2 = 0.758043 dan f(x2) = 0.000115
Iterasi-17, x2 = 0.758049 dan f(x2) = 0.000055
Iterasi-18, x2 = 0.758053 dan f(x2) = 0.000026
Iterasi-19, x2 = 0.758054 dan f(x2) = 0.000012
Iterasi-20, x2 = 0.758055 dan f(x2) = 0.000006

 Akar persamaan tersebut : 0.75805477
ython: Current File (Praktikum1_metnum)   Ln 44, Col 1  Spaces: 4  UTF-8  CRLF  Python
```


3.

```python
            return xn
        Dfxn = Df(xn)
        if Dfxn == 0:
            print('Solusi tidak ditemukan')
            return None
        xn = xn-(fxn/Dfxn)
        step = step + 1
        print('Iterasi-%d, x = %0.8f dab f(x) = %0.08f' % (step,xn,f(xn)))
    print('Iterasi maksimum, solusi tidak ditemukan')


# sesi input nilai awal yang di konversi ke pecahan
x0 = float(input('x0: '))
eps = float(input('epsilon: '))
newtonRaphson(x0, eps)
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

*** --Metode Newton Raphson-- ***
Iterasi-1, x = -1.00000000 dab f(x) = -6.64085909
Iterasi-2, x = -0.61744310 dab f(x) = -1.27804345
Iterasi-3, x = -0.50774860 dab f(x) = -0.15064944
Iterasi-4, x = -0.49273739 dab f(x) = -0.01050512
Iterasi-5, x = -0.49166714 dab f(x) = -0.00064306
Iterasi-6, x = -0.49160152 dab f(x) = -0.00003896
Iterasi-7, x = -0.49159755 dab f(x) = -0.00000236

 Akar Persamaan tersebut : -0.49159755
```

powershell
Python
Python Deb...

4.

```
        x1 = x2
        step = step+1

        if step > N:
            print('Divergen')
            break
        condition = abs(f(x2)) > eps
    print('\n Akar persamaan tersebut : %0.8f' % x2)


# sesi input nilai awal yang di konversi ke pecahan
x0 = float(input('x0: '))
x1 = float(input('x1: '))
N = int(input('Max Iter: '))
eps = float(input('epsilon: '))
Secant(x0,x1, eps)
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
epsilon: 0.00001
Iterasi-1, x = 0.22799448 dan f(x) = 2.76781531
Iterasi-2, x = 0.43325282 dan f(x) = 2.16876282
Iterasi-3, x = 1.17635408 dan f(x) = -4.92702113
Iterasi-4, x = 0.66037507 dan f(x) = 0.80746482
Iterasi-5, x = 0.73302934 dan f(x) = 0.21946951
Iterasi-6, x = 0.76014758 dan f(x) = -0.01873902
Iterasi-7, x = 0.75801428 dan f(x) = 0.00036785
Iterasi-8, x = 0.75805535 dan f(x) = 0.00000059

 Akar persamaan tersebut : 0.75805535
```

powershell
Python
Python Deb...