

ЛАБОРАТОРНА РОБОТА №2

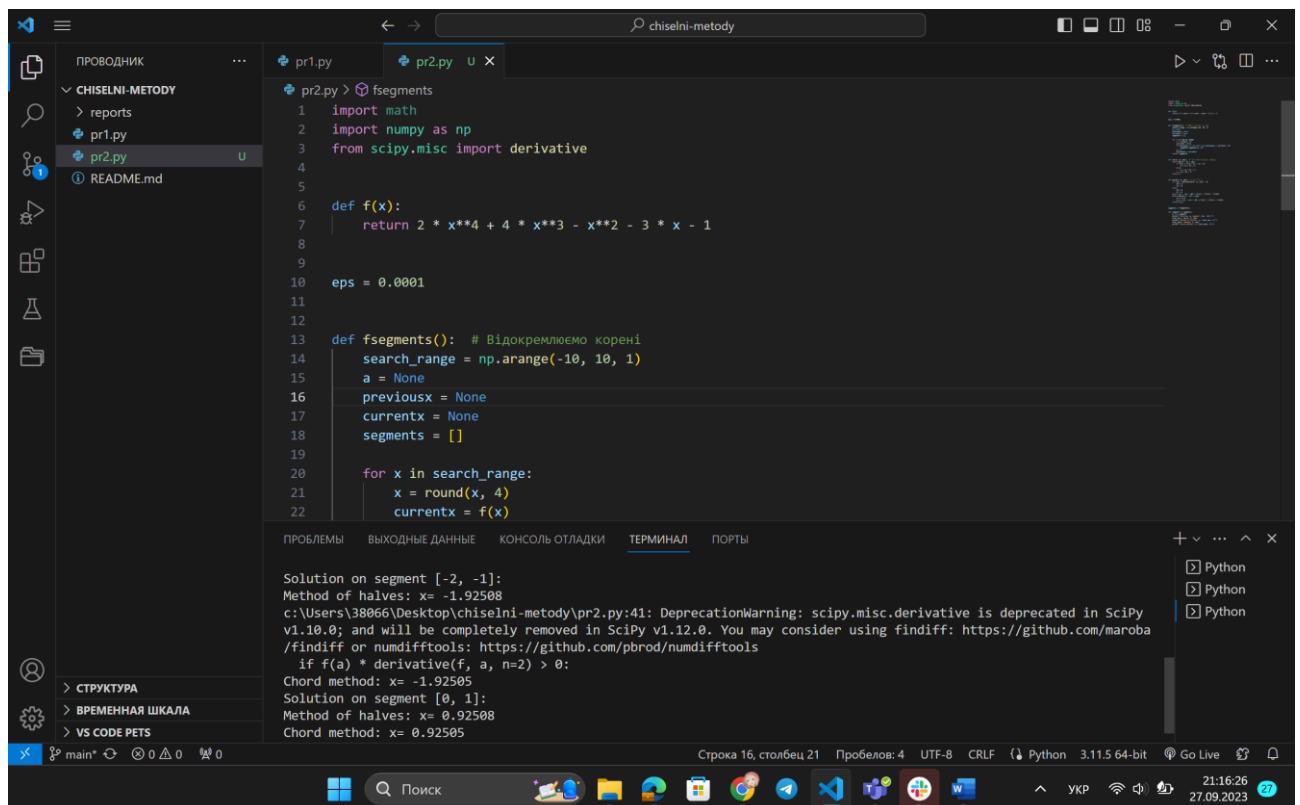
Тема: «Чисельні методи розв'язання нелінійних рівнянь»

Трубчанінов Андрій Сергійович

ФІТ 2-8

В-29

Код:



The screenshot shows a Visual Studio Code editor window with a Python file named `pr2.py`. The script defines a function `f(x)` and a function `fsegments()` that finds roots of the function on a given segment. The terminal output shows the results of the function calls.

```
pr2.py > fsegments
1 import math
2 import numpy as np
3 from scipy.misc import derivative
4
5
6 def f(x):
7     return 2 * x**4 + 4 * x**3 - x**2 - 3 * x - 1
8
9
10 eps = 0.0001
11
12
13 def fsegments(): # Відокремлюємо корені
14     search_range = np.arange(-10, 10, 1)
15     a = None
16     previousx = None
17     currentx = None
18     segments = []
19
20     for x in search_range:
21         x = round(x, 4)
22         currentx = f(x)
```

Terminal Output:

```
PROBLEMY ВИХОДНІ ДАНІ КОНСОЛЬ ОТЛАДКИ ТЕРМИНАЛ ПОРТИ
Solution on segment [-2, -1]:
Method of halves: x= -1.92508
c:\Users\38066\Desktop\chiselni-metody\pr2.py:41: DeprecationWarning: scipy.misc.derivative is deprecated in SciPy
v1.10.0; and will be completely removed in SciPy v1.12.0. You may consider using findiff: https://github.com/maroba
/findiff or numdifftools: https://github.com/pbrod/numdifftools
if f(a) * derivative(f, a, n=2) > 0:
Chord method: x= -1.92505
Solution on segment [0, 1]:
Method of halves: x= 0.92508
Chord method: x= 0.92505
```

