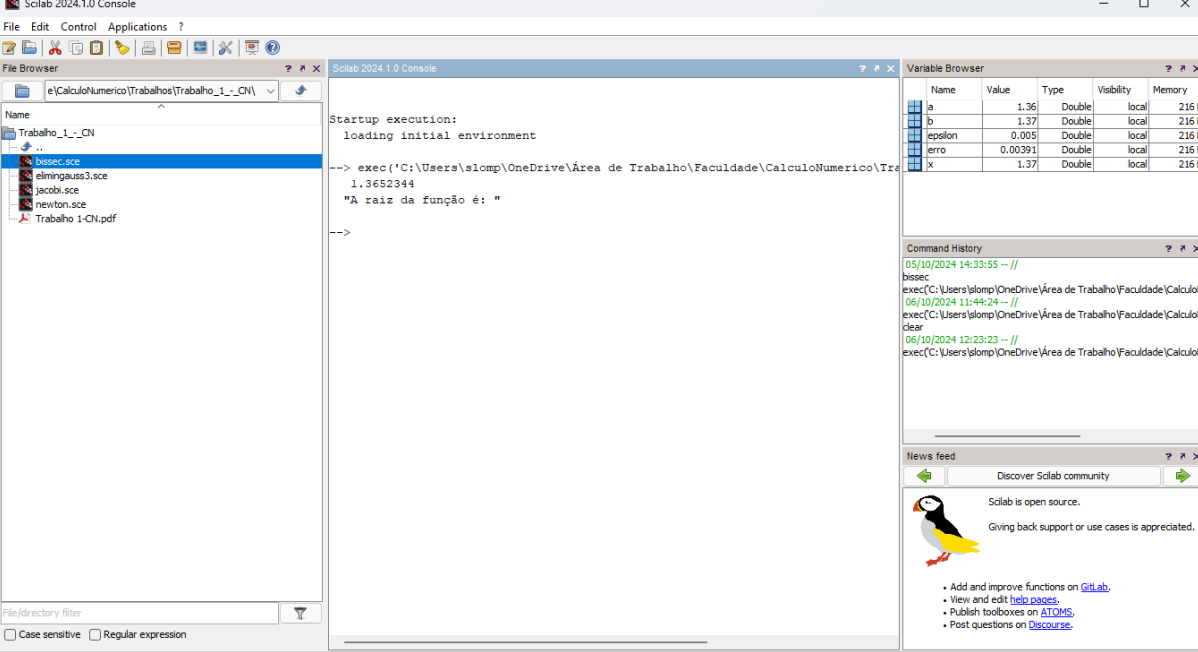


Instituto Federal Catarinense - Campus Blumenau  
Aluno: Celio Ludwig Slomp

## Questão 1:

a)



Scilab 2024.1.0 Console

File Edit Control Applications ?

File Browser

Name

Trabalho\_1\_CN

bissec.sce

elmingauss3.sce

jacobi.sce

newton.sce

Trabalho 1-CN.pdf

File/directory filter

☐ Case sensitive ☐ Regular expression

Startup execution:

loading initial environment

--> exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalho\_1\_CN.pdf')

1.3652344

"A raiz da função é: "

-->

Variable Browser

Name	Value	Type	Visibility	Memory
a	1.36	Double	local	216 B
b	1.37	Double	local	216 B
epsilon	0.005	Double	local	216 B
erro	0.00391	Double	local	216 B
x	1.37	Double	local	216 B

Command History

05/10/2024 14:33:55 -- //

bissec

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalho\_1\_CN.pdf')

06/10/2024 11:44:24 -- //

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalho\_1\_CN.pdf')

06/10/2024 12:23:23 -- //

clear

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalho\_1\_CN.pdf')

News feed

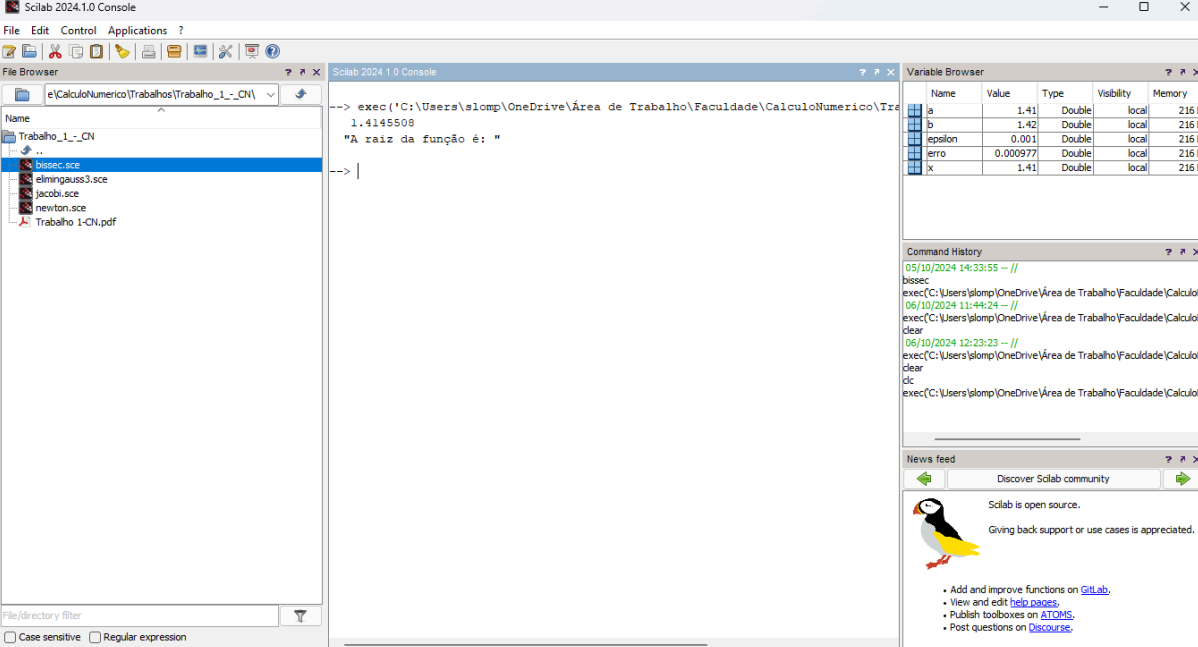
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b)



Scilab 2024.1.0 Console

File Edit Control Applications ?

File Browser

Name

Trabalho\_1\_CN

bissec.sce

elmingauss3.sce

jacobi.sce

newton.sce

Trabalho 1-CN.pdf

File/directory filter

☐ Case sensitive ☐ Regular expression

--> exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalho\_1\_CN.pdf')

1.4145508

"A raiz da função é: "

--> |

Variable Browser

Name	Value	Type	Visibility	Memory
a	1.41	Double	local	216 B
b	1.42	Double	local	216 B
epsilon	0.001	Double	local	216 B
erro	0.000977	Double	local	216 B
x	1.41	Double	local	216 B

Command History

05/10/2024 14:33:55 -- //

bissec

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalho\_1\_CN.pdf')

06/10/2024 11:44:24 -- //

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalho\_1\_CN.pdf')

06/10/2024 12:23:23 -- //

clear

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalho\_1\_CN.pdf')

clear

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalho\_1\_CN.pdf')

News feed

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c)

Scilab 2024.1.0 Console

File Edit Control Applications ?

File Browser

Name

e:\CalculoNumerico\Trabalhos\Trabalho\_1\_-\_CN\

Trabalho\_1\_-\_CN

..

bissec.sce

elmingauss3.sce

jacobi.sce

newton.sce

Trabalho 1-CN.pdf

File/directory filter

☐ Case sensitive ☐ Regular expression

Scilab 2024.1.0 Console

```
--> exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Tr
1.9337463
"A raiz da função é: "
```

Variable Browser

Name	Value	Type	Visibility	Memory
b	1.93	Double	local	216 B
b	1.93	Double	local	216 B
epsilon	0.0001	Double	local	216 B
erro	6.1e-05	Double	local	216 B
x	1.93	Double	local	216 B

Command History

05/10/2024 14:33:55 -- //

bissec

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoN

06/10/2024 11:44:24 -- //

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoN

clear

06/10/2024 12:23:23 -- //

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoN

clear

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoN

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoN

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoN

dc

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## Questão 2:

Código:

```
bissec.sce x bissec_ex2.sce x bissec_ex3.sce x bissec_ex4.sce x bissec_ex5.sce x
1 //saida: aproximação para a raiz da função
2
3
4
5
6
7
8
9 deff('y=f(x)', 'y=4*cos(x)-exp(x)');
10 a=0.5;
11 b=1;
12 epsilon=0.01;
13 x=(a+b)/2;
14 erro=(b-a);
15 while erro>epsilon
16     disp('Valor de x: '+string(x))
17     disp('Erro: '+string(erro))
18     if f(a)*f(x)<0
19         b=x;
20     else
21         a=x;
22     end
23     x=(a+b)/2;
24     erro=(b-a);
25 end
26 disp(x, 'A raiz da função é: ')
27
```

Print:

The screenshot displays the Scilab 2024.1.0 interface. On the left is a File Browser showing a directory structure with files like 'bissec.sce', 'bissec\_ex2.sce', etc. The central console window shows the execution of a script, outputting values for 'x' and 'erro' at each iteration of a bisection method, along with the final root value. On the right, the Variable Browser shows the current state of variables: 'a' (0.898), 'b' (0.906), 'epsilon' (0.01), 'erro' (0.00781), and 'x' (0.902). Below the variable browser is a Command History window showing the executed commands. At the bottom right is a News feed window with a penguin icon and text about Scilab being open source and providing links to GitHub, ATOMS, and Discourse.

Questão 3:

Código:

```
bissec.sce x bissec_ex2.sce x bissec_ex3.sce x bissec_ex4.sce x bissec_ex5.sce x
8
9 def f('y=f(x)', 'y=4*cos(x)-exp(x)');
10 a=0.5;
11 b=1;
12 epsilon=0.01;
13 x=(a+b)/2;
14 erro=(b-a);
15 while abs(f(x)) > epsilon
16     disp('Valor de x: ' + string(x))
17     disp('f(x): ' + string(f(x)))
18     if f(a)*f(x) < 0
19         b=x;
20     else
21         a=x;
22     end
23     x=(a+b)/2;
24     erro=(b-a);
25 end
26 disp(x, 'A raiz da função é: ')
```

Print:

Scilab 2024.1.0 Console

File Edit Control Applications ?

File Browser

Trabalho\_1\_-\_CH

Trabalho\_1\_-\_CH

bissec.sce

bissec\_ex2.sce

bissec\_ex3.sce

bissec\_ex4.sce

bissec\_ex5.sce

elminguass3.sce

jacob.sce

newton.sce

Trabalho 1-CH.pdf

File/Directory filter

☐ Case sensitive ☐ Regular expression

--> exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos

"Valor de x: 0.75"

"f(x): 0.8097555"

"Valor de x: 0.875"

"f(x): 0.1651121"

"Valor de x: 0.9375"

"f(x): -0.1863692"

0.90625

"A raiz da função é: "

--> |

Variable Browser

Name	Value	Type	Visibility	Memory
a	0.875	Double	local	216 B
b	0.938	Double	local	216 B
epsilon	0.01	Double	local	216 B
erro	0.0625	Double	local	216 B
x	0.906	Double	local	216 B

Command History

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNum

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNum

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNum

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNum

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNum

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNum

dc

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#### Questão 4:

Código:

```
bissec.sce x bissec_ex2.sce x bissec_ex3.sce x bissec_ex4.sce x bissec_ex5.sce x
9 deff('y=f(x)', 'y=4*cos(x)-exp(x)');
10 a=0.5;
11 b=1;
12 epsilon=0.01;
13 x=(a+b)/2;
14 erro=(b-a);
15 iteracoes=0;
16 while erro>epsilon
17     iteracoes=iteracoes+1;
18     if f(a)*f(x)<0
19         b=x;
20     else
21         a=x;
22     end
23     x=(a+b)/2;
24     erro=(b-a);
25 end
26 disp('A raiz da função é: ' + string(x))
27 disp('Teve um total de ' + string(iteracoes) + ' iteraco
es')
```

Print:

The screenshot displays the Scilab 2024.1.0 interface. On the left is a File Browser showing a directory structure with files like 'bissec.sce', 'bissec\_ex2.sce', etc. The central Console window shows the execution of a script, outputting the root of the function and the number of iterations. On the right, the Variable Browser shows a table of variables and their values.

Name	Value	Type	Visibility	Memory
a	0.898	Double	local	216 B
b	0.906	Double	local	216 B
epsilon	0.01	Double	local	216 B
erro	0.00781	Double	local	216 B
iteracoes	6	Double	local	216 B
x	0.902	Double	local	216 B

Command History:

```
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\10\10\2024\2113104 -- //
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\10\10\2024\2113104 -- //
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\10\10\2024\2113104 -- //
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\10\10\2024\2113104 -- //
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\10\10\2024\2113104 -- //
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\10\10\2024\2113104 -- //
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\10\10\2024\2113104 -- //
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\10\10\2024\2113104 -- //
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\10\10\2024\2113104 -- //
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\10\10\2024\2113104 -- //
```

## Questão 5:

Código:

```
bissec.sce x bissec_ex2.sce x bissec_ex3.sce x bissec_ex4.sce x bissec_ex5.sce x
9 def f('y=f(x)', 'y=4*cos(x)-exp(x)');
10 a=0.5;
11 b=1;
12 epsilon=0.01;
13 x=(a+b)/2;
14 erro=(b-a);
15 matriz=[];
16 //matriz=['a', 'b', 'x', 'b-a'; a,b,x,erro];
17 while erro > epsilon
18     if f(a)*f(x) < 0
19         b=x;
20     else
21         a=x;
22     end
23     x=(a+b)/2;
24     erro=(b-a);
25     matriz=[matriz; a, b, x, abs(b-a)];
26 end
27 disp(matriz)
28 disp(x, 'A raiz da função é: ')
```

Print:

File Browser

File ?

File Browser

Trabalho\_1\_CN

Trabalho\_1\_CN

..

bissec.sce

bissec\_ex2.sce

bissec\_ex3.sce

bissec\_ex4.sce

bissec\_ex5.sce

bissec\_ex5.sce~

elmingauss3.sce

jacob.sce

newton.sce

Trabalho 1-CN.pdf

File/directory filter

☐ Case sensitive ☐ Regular expression

Sclab 2024.1.0 Console

--> exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos

2. 3. 2.5 1.

2. 2.5 2.25 0.5

2. 2.25 2.125 0.25

2.125 2.25 2.1875 0.125

2.1875 2.25 2.21875 0.0625

2.21875 2.25 2.234375 0.03125

2.234375 2.25 2.2421875 0.015625

2.234375 2.2421875 2.2382812 0.0078125

2.2382812

"A raiz da função é: "

-->

Variable Browser

Name	Value	Type	Visibility	Memory
a	2.23	Double	local	216 B
b	2.24	Double	local	216 B
epsilon	0.01	Double	local	216 B
erro	0.00781	Double	local	216 B
matriz	8x4	Double	local	464 B
X	2.24	Double	local	216 B

Command History

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNun

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNun

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNun

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNun

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNun

dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNun


dc

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNun

dc

News feed

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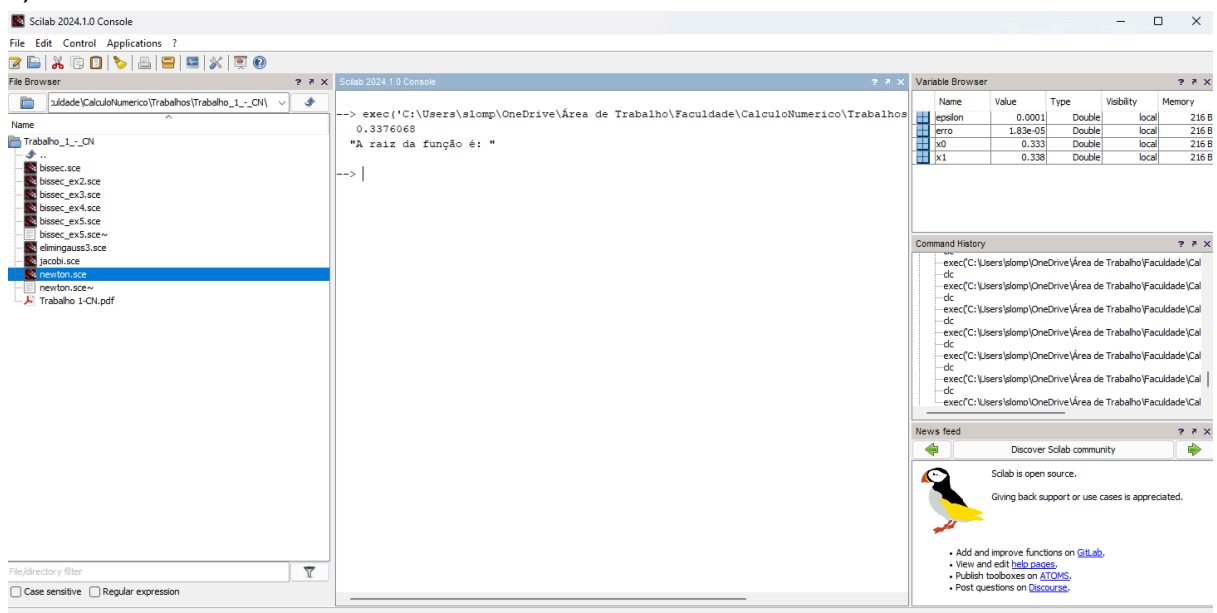
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## Questão 6:

Código:

```
newton.sce X
9
10 deff('y=f(x)', 'y=x^2-5');
11 deff('ylinha=g(x)', 'ylinha=2*x');
12
13 x0=3;
14
15 epsilon=0.01;
16
17 x1=x0-f(x0)/g(x0);
18
19 erro=abs(f(x1));
20
21 while erro > epsilon
22     x0=x1;
23     x1=x0-f(x0)/g(x0);
24     erro=abs(f(x1));
25 end
26
27 disp(x1, 'A raiz da função é: ')
28
```

a)



b)

The screenshot shows the Scilab 2024.1.0 interface. The File Browser on the left displays a directory structure with files like `bissec.sce`, `bissec_ex2.sce`, `bissec_ex3.sce`, `bissec_ex4.sce`, `bissec_ex5.sce`, `elimingauss3.sce`, `elimingauss.sce`, `jacobi.sce`, `newton.sce`, and `newton.sce~`. The Console in the center shows the execution of a command to find the root of a function, resulting in the value 2.6457520. The Variable Browser on the right displays a table of variables: `epsilon` (0.001, Double, local, 216 B), `erro` (3.9e-06, Double, local, 216 B), `x0` (2.65, Double, local, 216 B), and `x1` (2.65, Double, local, 216 B). The Command History and News feed are also visible at the bottom right.

File Browser

File ?

Scilab 2024.1.0 Console

```
--> exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos
2.6457520
"A raiz da função é: "
```

Variable Browser

Name	Value	Type	Visibility	Memory
epsilon	0.001	Double	local	216 B
erro	3.9e-06	Double	local	216 B
x0	2.65	Double	local	216 B
x1	2.65	Double	local	216 B

Command History

```
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
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exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
```

News feed

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c)

The screenshot shows the Scilab 2024.1.0 interface. The File Browser on the left displays a directory structure with files like `bissec.sce`, `bissec_ex2.sce`, `bissec_ex3.sce`, `bissec_ex4.sce`, `bissec_ex5.sce`, `elimingauss3.sce`, `elimingauss.sce`, `jacobi.sce`, `newton.sce`, and `newton.sce~`. The Console in the center shows the execution of a command to find the root of a function, resulting in the value 0.7140119. The Variable Browser on the right displays a table of variables: `epsilon` (0.0001, Double, local, 216 B), `erro` (2.19e-05, Double, local, 216 B), `x0` (0.718, Double, local, 216 B), and `x1` (0.715, Double, local, 216 B). The Command History and News feed are also visible at the bottom right.

File Browser

File ?

Scilab 2024.1.0 Console

```
--> exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos
0.7140119
"A raiz da função é: "
```

Variable Browser

Name	Value	Type	Visibility	Memory
epsilon	0.0001	Double	local	216 B
erro	2.19e-05	Double	local	216 B
x0	0.718	Double	local	216 B
x1	0.715	Double	local	216 B

Command History

```
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
```

News feed

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## Questão 7:

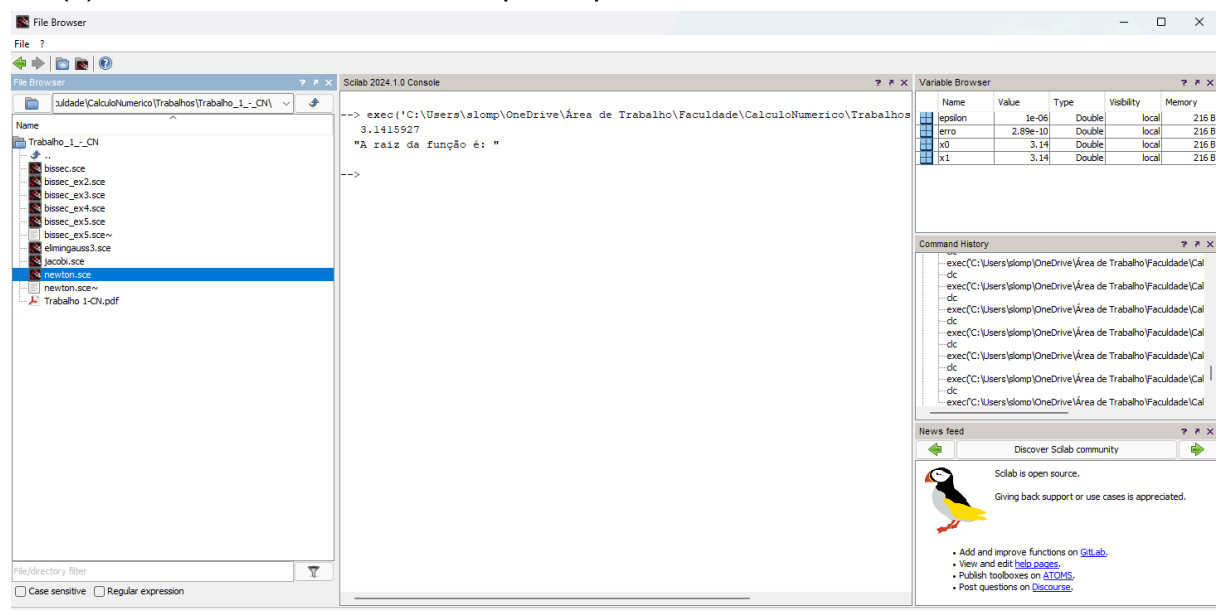
Código:

```
newton.sce X
12
13 deff('y=f(x)', 'y=sin(x)');
14 deff('ylinha=g(x)', 'ylinha=cos(x)');
15
16 x0=3;
17
18 epsilon=0.000001;
19
20 x1=x0-f(x0)/g(x0);
21
22 erro=abs(f(x1));
23
24 while erro > epsilon
25     x0=x1;
26     x1=x0-f(x0)/g(x0);
27     erro=abs(f(x1));
28 end
29
30 disp(x1, 'A raiz da função é: ')
31
```

Line 18. Column 15.

Print:

sen(x) -> Precisou de erro =  $10^{-6}$  para aproximar



$\cos(x) + 1 \rightarrow$  Precisou de erro =  $10^{-9}$  para aproximar

The screenshot shows the Scilab 2024.1.0 interface. On the left is a File Browser showing a directory structure with files like `bissec.sce`, `bissec_ex2.sce`, `bissec_ex3.sce`, `bissec_ex4.sce`, `bissec_ex5.sce`, `elimingauss3.sce`, `jacob.sce`, `newton.sce`, and `newton.sce~`. The main console area shows the execution of a script, with the output: `3.1415582` and `"A raiz da função é: "`. On the right, the Variable Browser shows a table of variables:

Name	Value	Type	Visibility	Memory
epsilon	1e-09	Double	local	216 B
erro	5.95e-10	Double	local	216 B
x0	3.14	Double	local	216 B
x1	3.14	Double	local	216 B

Below the Variable Browser is the Command History, showing a list of executed commands. At the bottom right is a News feed section with a penguin icon and text about Scilab being open source and giving back support.

## Questão 8:

Código:

```
newton.sce x
9
10 deff('y=f(x)', 'y=x^2-5');
11 deff('ylinha=g(x)', 'ylinha=2*x');
12
13 x0=3;
14 epsilon=0.01;
15 x1=x0-f(x0)/g(x0);
16 iteracoes = 0
17 erro=abs(f(x1));
18
19 while erro > epsilon
20     iteracoes = iteracoes + 1
21     x0=x1;
22     x1=x0-f(x0)/g(x0);
23     erro=abs(f(x1));
24 end
25
26 disp(x1, 'A raiz da função é: ')
27 disp('Teve um total de ' + string(iteracoes) + ' iteraco
es')
```

Print:

The screenshot displays the Scilab 2024.1.0 interface. On the left is a File Browser showing a directory structure with files like 'Trabalho\_1\_ON', 'bissec.sce', 'bissec\_ex2.sce', 'bissec\_ex3.sce', 'bissec\_ex4.sce', 'bissec\_ex5.sce', 'elimingauss3.sce', 'jacobi.sce', 'newton.sce', and 'newton9.sce'. The main console area shows the execution of a script with the following output:

```
--> exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\2.2380952\n\n"A raiz da função é: "\n"Teve um total de 1 iteracoes"\n\n-->
```

On the right, the Variable Browser shows the following variables:

Name	Value	Type	Visibility	Memory
epsilon	0.01	Double	local	216 B
erro	0.00907	Double	local	216 B
iteracoes	1	Double	local	216 B
x0	2.33	Double	local	216 B
x1	2.24	Double	local	216 B

Below the variable browser is the Command History, which lists several 'exec' commands. At the bottom right is a News feed section with a penguin icon and text about Scilab being open source and giving back support.

Questão 9:

Código:

```
newton.sce x newton9.sce x  
10 deff('y=f(x)', 'y=x**10.-1');  
11 deff('ylinha=g(x)', 'ylinha=10*x**9');  
12  
13 x0=0.5;  
14 epsilon=0.0001;  
15 x1=x0-f(x0)/g(x0);  
16 iteracoes = 0  
17 erro=abs(f(x1));  
18  
19 while erro > epsilon  
20     iteracoes = iteracoes + 1  
21     x0=x1;  
22     x1=x0-f(x0)/g(x0);  
23     erro=abs(f(x1));  
24 end  
25  
26 disp(x1, 'A raiz da função é: ')  
27 disp('Teve um total de ' + string(iteracoes) + ' iteraco  
es')  
28
```

Print:

The screenshot displays the Scilab 2024.1.0 interface. The main window is divided into several panes:

- File Browser:** Shows a directory tree with files like `Trabalho_1_CN`, `Trabalho_1-CN.pdf`, and various `newton9.sce` files.
- Scilab 2024.1.0 Console:** Contains the following text:

```
--> exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\1.00000000\n\n"A raiz da função é: "\n"Teve um total de 41 iteracoes"\n\n-->
```
- Variable Browser:** A table showing variables and their properties:

Name	Value	Type	Visibility	Memory
epsilon	0.0001	Double	local	216 B
erro	2.58e-08	Double	local	216 B
iteracoes	41	Double	local	216 B
x0	1	Double	local	216 B
x1	1	Double	local	216 B

- Command History:** Shows a list of executed commands, including `exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal` and `clc`.
- News feed:** Contains a message about Scilab being open source and a link to the Scilab community.

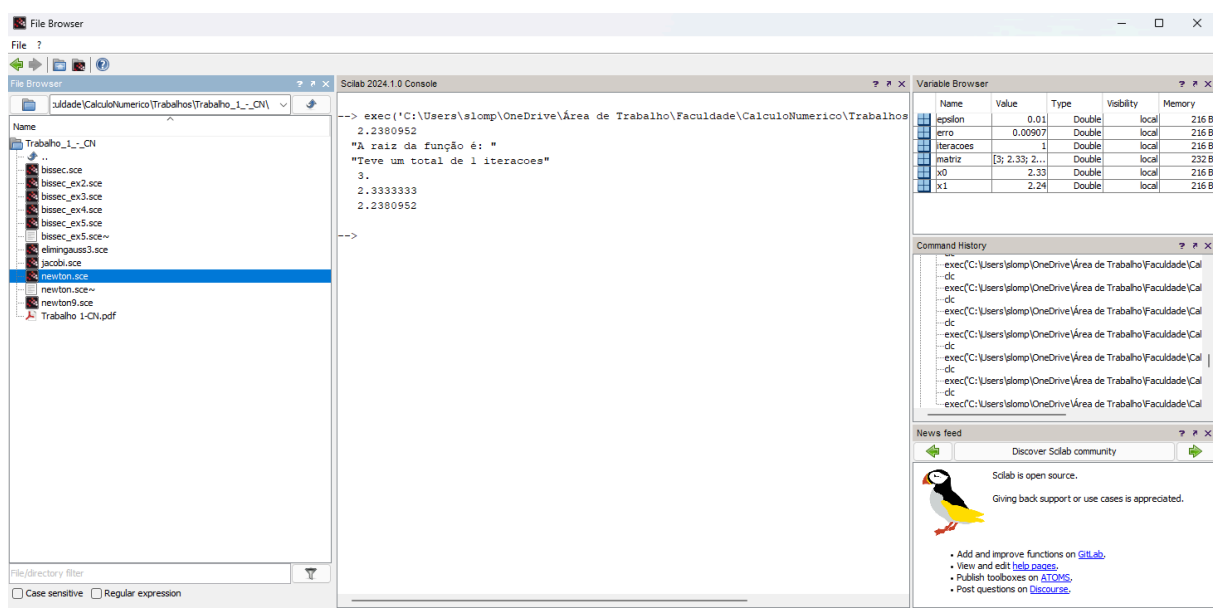
Explicação: Foram necessárias 41 iterações. O código é lento por conta de que há operação exponencial e, executá-las 41 vezes pode causar lentidão no computador.

## Questão 10:

Código:

```
newton.sce x bissec_ex5.sce x
10 deff('y=f(x)', 'y=x^2-5');
11 deff('ylinha=g(x)', 'ylinha=2*x');
12
13 x0=3;
14 epsilon=0.01;
15 x1=x0-f(x0)/g(x0);
16 iteracoes = 0
17 erro=abs(f(x1));
18 matriz = [x0];
19 while erro > epsilon
20     iteracoes = iteracoes + 1;
21     x0=x1;
22     x1=x0-f(x0)/g(x0);
23     erro=abs(f(x1));
24     matriz = [matriz; x0];
25 end
26 matriz = [matriz; x1];
27 disp(x1, 'A raiz da função é: ')
28 disp('Teve um total de ' + string(iteracoes) + ' iteraco
es')
29 disp(matriz)
```

Print:



## Questão 11:

Código:

```
bissec_ex5.sce x elimingauss3.sce x
1 clear
2
3 //Eliminação Gaussiana 3 (pode ter pivô nulo)
4 //Entradas
5 A = [5 2 1; -1 4 2; 2 -3 10];
6 b = [-12; 20; 3];
7
8 //Matriz aumentada
9 Ab = [A b];
```

Coloquei apenas as entradas.

Print:

The screenshot displays the Scilab 2024.1.0 interface. The File Browser on the left shows the directory structure, with 'elimingauss3.sce' selected. The Scilab Console in the center shows the execution of the script, including the definition of matrices A and b, and the calculation of the augmented matrix Ab. The Variable Browser on the right shows the variables A, Ab, b, i, k, mik, n, and x, along with their values, types, and memory addresses. The Command History at the bottom shows the sequence of commands executed. The News Feed at the bottom right contains a message about Scilab being open source and a link to the Scilab community.

Name	Value	Type	Visibility	Memory
A		3x3 Double	local	280 B
Ab		3x4 Double	local	304 B
b		3x1 Double	local	280 B
i	1	Double	local	232 B
k	2	Double	local	216 B
mik	-0.864	Double	local	216 B
n	3	Double	local	216 B
x	[-4; 3; 2]	Double	local	232 B

### Questão 12:

Código:

```
bissec_ex5.sce  X  jacobi.sce  X
4 //Entradas
5 A=[10 -2 -1; -1 -4 -2; -2 -3 -10];
6 b=[7; -8; -6];
7 epsilon=0.05;
8 xv=[0.7; -1.6; -0.6];
9 max_it=100;
10
11 n=size(A,1); // número de linhas (número de equações)
12 for k=1:max_it
13     for i=1:n //processo iterativo de Jacobi
14         x(i)=(b(i)-(sum(A(i,1:n)*xv(1:n))-A(i,i)*xv(i)))/A(i,i);
15     end
16
17     if max(abs(x-xv))<epsilon
18         disp(x)
19         break
20     else
21         xv=x;
22     end
23
24     if k==max_it
25         disp(x,'após o número máximo de iterações chegou a')
26     end
27 end
28
```

Scilab 2024.1.0 Console

File Edit Control Applications ?

File Browser

Trabalho\_1\_--\_ON

Trabalho\_1\_--\_ON

...

bissec.sce

bissec\_ex2.sce

bissec\_ex3.sce

bissec\_ex4.sce

bissec\_ex5.sce

bissec\_ex5.sce~

elmingauss3.sce

jacobi.sce

newton.sce

newton9.sce

Trabalho 1-CN.pdf

File/directory filter

☐ Case sensitive ☐ Regular expression

--> exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\CalculoNumerico\Trabalhos\Trabalho\_1\_--\_ON')

```

1.0408765
-1.6932450
-0.1041168
-->

```

Variable Browser

Name	Value	Type	Visibility	Memory
a	3d3	Double	local	28 B
b	[7; -8]	Double	local	232 B
epsilon	0.05	Double	local	216 B
i	3	Double	local	216 B
k	5	Double	local	216 B
max_it	100	Double	local	216 B
n	3	Double	local	216 B
x	[1.04; -1...	Double	local	232 B
xv	[1.04; -1...	Double	local	232 B

Command History

```

exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
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dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc
exec('C:\Users\slomp\OneDrive\Área de Trabalho\Faculdade\Cal
dc

```

News feed

Discover Scilab community

Scilab is open source.  
Giving back support or use cases is appreciated.

- Add and improve functions on [Scilab](#).
- View and edit [help pages](#).
- Publish toolboxes on [ATOMS](#).
- Post questions on [Discourse](#).