```
%Lecture 3%

%Vitor Cavalcante%

 a = zeros(2,3)


ezplot('tanh(x)')


clear; clc

x = -5:0.5:5

x = x'

clear; clc

for n = 1:21
    y(n) = (1 - sin(3*n))
end

disp('             x                    ')
y = y'

clear; clc


%Lecture 4%

%Vitor Cavalcante%

clear; clc

format compact

disp('     ')
disp(' Quadratic Root Finder ')
disp('     ')

A = input('Specify coefficients as follows: [a, b, c] = ')
a = A(1);
b = A(2);
c = A(3);

if a == 0 & b == 0 & c == 0
        disp ('Solutions is indeterminate ')
elseif a == 0 & b == 0
        disp('There is no solution. Better luck next time :) ')
elseif a == 0
            x = -c/b
            x1 = x;
```

```
            x2 = x;
            disp('Only one root: equation is linear.')
elseif b.^2 == 4.*a.*c
                x = -b./(2.*a)
                x1 = x;
                x2 = x;
                disp(' Equal roots')
            else
                % b.^2 > 4.*a.*c %

                x1 = (-b + sqrt(b.^2-4*a.*c) )./ (2.*a);
                x2 = (-b - sqrt(b.^2-4*a.*c) )./ (2.*a);
                disp(' x1, x2 the two distinct roots')
                disp([x1 x2])

            end

a =
     0     0     0
     0     0     0
x =
  Columns 1 through 7
   -5.0000   -4.5000   -4.0000   -3.5000   -3.0000   -2.5000   -2.0000
  Columns 8 through 14
   -1.5000   -1.0000   -0.5000         0    0.5000    1.0000    1.5000
  Columns 15 through 21
    2.0000    2.5000    3.0000    3.5000    4.0000    4.5000    5.0000
x =
   -5.0000
   -4.5000
   -4.0000
   -3.5000
   -3.0000
   -2.5000
   -2.0000
   -1.5000
   -1.0000
   -0.5000
         0
    0.5000
    1.0000
    1.5000
    2.0000
    2.5000
    3.0000
    3.5000
    4.0000
    4.5000
    5.0000
y =
    0.8589
y =
    0.8589    1.2794
y =
```

```
    0.8589    1.2794    0.5879

y =

    0.8589    1.2794    0.5879    1.5366

y =

    0.8589    1.2794    0.5879    1.5366    0.3497

y =

    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510

y =

    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633

y =

  Columns 1 through 7

    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633

  Column 8

    1.9056

y =

  Columns 1 through 7

    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633

  Columns 8 through 9

    1.9056    0.0436

y =

  Columns 1 through 7

    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633

  Columns 8 through 10

    1.9056    0.0436    1.9880

y =

  Columns 1 through 7

    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633

  Columns 8 through 11

    1.9056    0.0436    1.9880    0.0001

y =

  Columns 1 through 7

    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633

  Columns 8 through 12

    1.9056    0.0436    1.9880    0.0001    1.9918

y =

  Columns 1 through 7

    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633

  Columns 8 through 13

    1.9056    0.0436    1.9880    0.0001    1.9918    0.0362

y =

  Columns 1 through 7

    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633

  Columns 8 through 14

    1.9056    0.0436    1.9880    0.0001    1.9918    0.0362    1.9165

y =

  Columns 1 through 7

    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633

  Columns 8 through 14

    1.9056    0.0436    1.9880    0.0001    1.9918    0.0362    1.9165

  Column 15

    0.1491

y =

  Columns 1 through 7

    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633
```

```
  Columns 8 through 14
    1.9056    0.0436    1.9880    0.0001    1.9918    0.0362    1.9165
  Columns 15 through 16
    0.1491    1.7683
y =
  Columns 1 through 7
    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633
  Columns 8 through 14
    1.9056    0.0436    1.9880    0.0001    1.9918    0.0362    1.9165
  Columns 15 through 17
    0.1491    1.7683    0.3298
y =
  Columns 1 through 7
    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633
  Columns 8 through 14
    1.9056    0.0436    1.9880    0.0001    1.9918    0.0362    1.9165
  Columns 15 through 18
    0.1491    1.7683    0.3298    1.5588
y =
  Columns 1 through 7
    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633
  Columns 8 through 14
    1.9056    0.0436    1.9880    0.0001    1.9918    0.0362    1.9165
  Columns 15 through 19
    0.1491    1.7683    0.3298    1.5588    0.5638
y =
  Columns 1 through 7
    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633
  Columns 8 through 14
    1.9056    0.0436    1.9880    0.0001    1.9918    0.0362    1.9165
  Columns 15 through 20
    0.1491    1.7683    0.3298    1.5588    0.5638    1.3048
y =
  Columns 1 through 7
    0.8589    1.2794    0.5879    1.5366    0.3497    1.7510    0.1633
  Columns 8 through 14
    1.9056    0.0436    1.9880    0.0001    1.9918    0.0362    1.9165
  Columns 15 through 21
    0.1491    1.7683    0.3298    1.5588    0.5638    1.3048    0.8326
             x
y =
    0.8589
    1.2794
    0.5879
    1.5366
    0.3497
    1.7510
    0.1633
    1.9056
    0.0436
    1.9880
    0.0001
    1.9918
    0.0362
```

```
    1.9165
    0.1491
    1.7683
    0.3298
    1.5588
    0.5638
    1.3048
    0.8326

 Quadratic Root Finder


Error using input
Cannot call INPUT from EVALC.
Error in Lecture3_4 (line 41)
A = input('Specify coefficients as follows: [a, b, c] = ')
```

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