

ELEN 3381 Assignment #2

Due date: Shown on the Blackboard.

Please submit:

1. Your MATLAB code.
2. Copy of a screenshot after your program is executed (Graphic Window).
3. Verify the answer from your program with the value produced by “nthroot” function in MATLAB.

Please convert the following C program that find a cube root, into MATLAB program. Your MATLAB program must generate a 2D plot of the estimate values until it finds the cube root.

```
#include <iostream>
#include <cmath>
using namespace std;

int main()
{
    double min = 1, max = 1, target, mid;
    bool done = false;

    cout << "Enter a number that you want cube root : ";
    cin >> target;

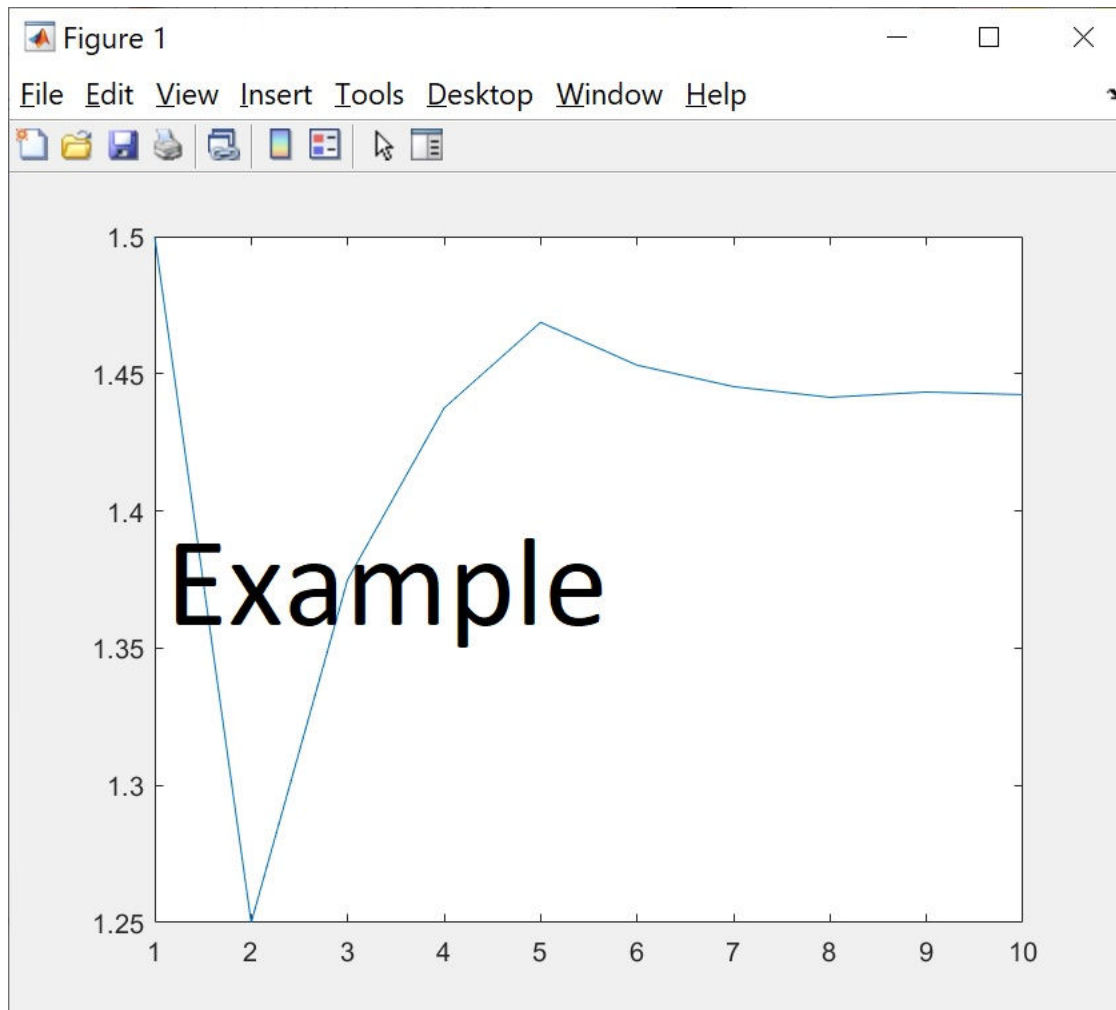
    if (target > 1)
        max = target;
    else
        min = target;

    while (!done)
    {
        mid = (min + max) / 2;
        if (abs(target - (mid * mid * mid)) < 0.00000001)
            done = true;
        else if ((target - (mid * mid * mid)) > 0)
            min = mid;
        else
            max = mid;
    }

    cout << "My Cube root of " << target << " is " << mid << endl << endl;
    cout << "C++ Cube root of " << target << " is " << cbrt(target) << endl << endl;

    return 0;
} // main
```

The following example shows the plot finding the cube root of 3.



When you create MATLAB code, make sure you understand looping techniques as well as storing values in an array / vector.

You may start with the following example code. Remember, “if-else” statement is needed for this assignment.

```
x = 3;
delta = 0.000000001;
r(1) = 1;
r(2) = 2;
maxit = 25;
i = 2;
while abs(r(i - 1)-r(i)) > delta && i<maxit
    r(i+1) = 0.5*(r(i) + x/r(i));
    i = i + 1;
end

plot(r)
```