

Name: ALEGBELEYE OLUWAFETAI O  
 Department: ELECTRICAL / ELECTRONICS ENGINEERING  
 Matric No: 17/ENG04/011

ENE 382 ASSIGNMENT II SOLUTION

```

Command window      errors      X to double/V      iter
Clear                0          0.5                0
clc                  1P288 0      1P288 0            1
syms x              1P288 0      1P288 0            2
format short g      1P288 0      1P288 0            3
f = exp(-0.5*x) * (4-x) - 2; % f(x) = exp(-0.5*x) * (4-x) - 2
fprime = diff(f);   1P288 0      1P288 0            4
x = 0.5;            0          1P288 0            5
for i = 1:10;      0          1P288 0            6
    iter(i+1) = i;  0          1P288 0            7
    X(i) = x;      0          1P288 0            8
    x = double(subs(x - (f/fprime))); 1P288 0      9
    X(i+1) = x;
    ea(i+1) = abs((X(i+1) - X(i)) / X(i+1)) * 100;
    if ea(i) <= 1E-21;
        break
    end
end
end
femmy = table(iter, X, ea)
femmy.Properties.VariableNames = {'iter', 'X'}
femmy.Properties.VariableNames = {'iteration number', 'Values of X', 'errors'}
  
```

# Output

Iteration	Values of $x$	errors
0	0.5	0
1	0.83889	40.397
2	0.88496	5.2054
3	0.88571	0.084972
4	0.88571	2.2247e-05
5	0.88571	1.5293e-12
6	0.88571	0