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17/ENG 01/013

CHEMICAL ENGINEERING

ENGINEERING MATHEMATICS IV ASSIGNMENT II

Command window

```
clear
```

```
clc
```

```
syms x
```

```
format short g
```

```
f = exp(-0.5 * x) * (4 - x) - 2;
```

```
fprime = diff(f);
```

```
x = 0.5;
```

```
for i = 1:10;
```

```
    iter(i+1) = i;
```

```
    X(i) = x;
```

```
    X = double(subs(x - (f/fprime)));
```

```
    X(i+1) = X;
```

```
    ea(i+1) = abs((X(i+1) - X(i))/X(i+1)) * 100;
```

```
    if ea(i+1) <= 1E-21;
```

```
        break
```

end

end

bit = table('iter', 'x', 'ea')

bit.Properties.VariableNames = {'iteration number',
'values of X', 'errors'}

ANS => OUTPUT

bit =

<u>iteration Number</u>	<u>Values of X</u>	<u>errors</u>
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