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Chemical Engineering

```
Command window
Clear
clc
format short;
Sym x
x(i) = 0.5;
K = 1;
tol = 1E-21;
max I = 50;
err(i) = 0;
g = (exp(-0.5 * x) * (4 - x)) - 2;
g prime = diff(g);
for k = 2 max I;
    x(k) = ((x(k-1)) - ((subs g, x(k-1)) / subs(g prime, x(k-1))));
    K = x(K-1)
    err(k) = abs(x(k)) - (x(k-1)) * 100;
    If err(k) <= tol,
      break
      end
    end
```

table = [k' x' err']

1	0.5	0
2	0.83889	38.889
3	0.98571	4.6063
4	0.88571	0.07526
5	0.88571	$1.9704e^{-0.5}$
6	0.88571	$1.3345e^{-12}$
7	0.88571	0