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```
clear, clc
f = @(x) exp(-x)-x;
fplot(f,[0,1])
```
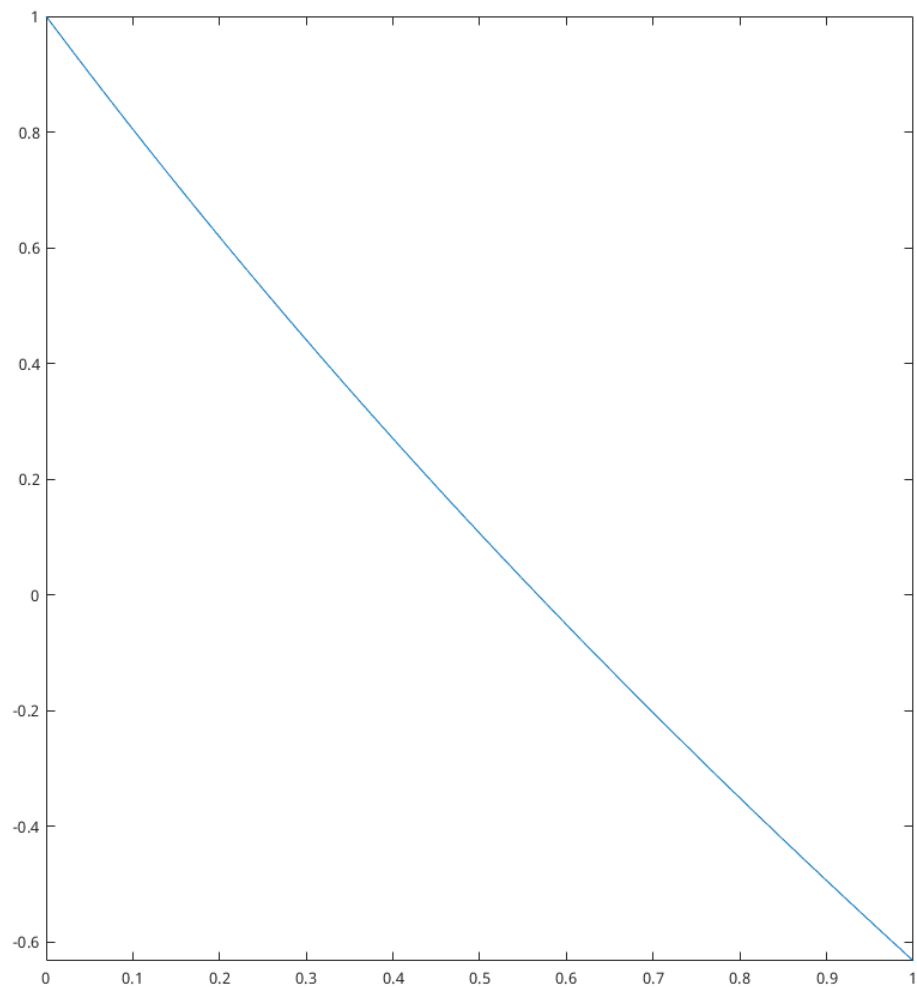

Fixed-Point Iteration

```
[xr0,fxr0,ea0] = fixedpt(f,0,[],5)
```

```
[xr1,fxr1,ea1] = fixedpt(f,.5,[],5)
[xr,fxr,ea] = fixedpt(f,0)
```

xr0 =
    0.6062
fxr0 =
    -0.0608
ea0 =
    17.4468
xr1 =
    0.5712
fxr1 =
    -0.0063
ea1 =
    1.9447
xr =
    0.5671
fxr =
    -2.3071e-07
ea =
    7.1726e-05

Newton-Raphson Mehtod

```
df = @(x) -exp(-x)-1;
[root,ea]=newtraph(f,df,0)
%[root,ea]=newtraph(f,df,100)
```

root =
    0.5671
ea =
    2.2106e-05

fzero w/ options

```
options = optimset('display','iter');
[x,fx]=fzero(f,0,options)
```

Search for an interval around 0 containing a sign change:

Func-count	a	f(a)	b	f(b) Procedure
1	0	1	0	1 initial interval
3	-0.0282843	1.05697	0.0282843	0.943828 search
5	-0.04	1.08081	0.04	0.920789 search
7	-0.0565685	1.11477	0.0565685	0.888433 search
9	-0.08	1.16329	0.08	0.843116 search
11	-0.113137	1.23292	0.113137	0.779891 search

```
    13            -0.16          1.33351          0.16        0.692144
  search
    15          -0.226274        1.48019        0.226274      0.571225
  search
    17            -0.32          1.69713          0.32        0.406149
  search
    19          -0.452548        2.02486        0.452548      0.183457
  search
    21            -0.64          2.53648          0.64        -0.112708
  search

Search for a zero in the interval [-0.64, 0.64]:
 Func-count     x          f(x)             Procedure
    21           0.64       -0.112708        initial
    22          0.585543    -0.0287402       interpolation
    23          0.567113    4.75691e-05      interpolation
    24          0.567143    -1.57936e-07     interpolation
    25          0.567143    -8.67417e-13     interpolation
    26          0.567143    1.11022e-16      interpolation
    27          0.567143    1.11022e-16      interpolation

Zero found in the interval [-0.64, 0.64]
x =
    0.5671
fx =
   1.1102e-16
```

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