
Table of Contents

.....	1
Golden Section Search	2
Parabolic Interpolation	2
Comparison of two meathods	3
fminbnd with options	4

```
% Cory Wolfe
```

```
clear,clc
```

```
f = @(x) x^2/10-2*sin(x);
```

```
figure(1),fplot(f,[0,4])
```

```
fx = @(x) x/5-2*cos(x);
```

```
xmin = fzero(fx,2)
```

```
fmin = f(xmin)
```

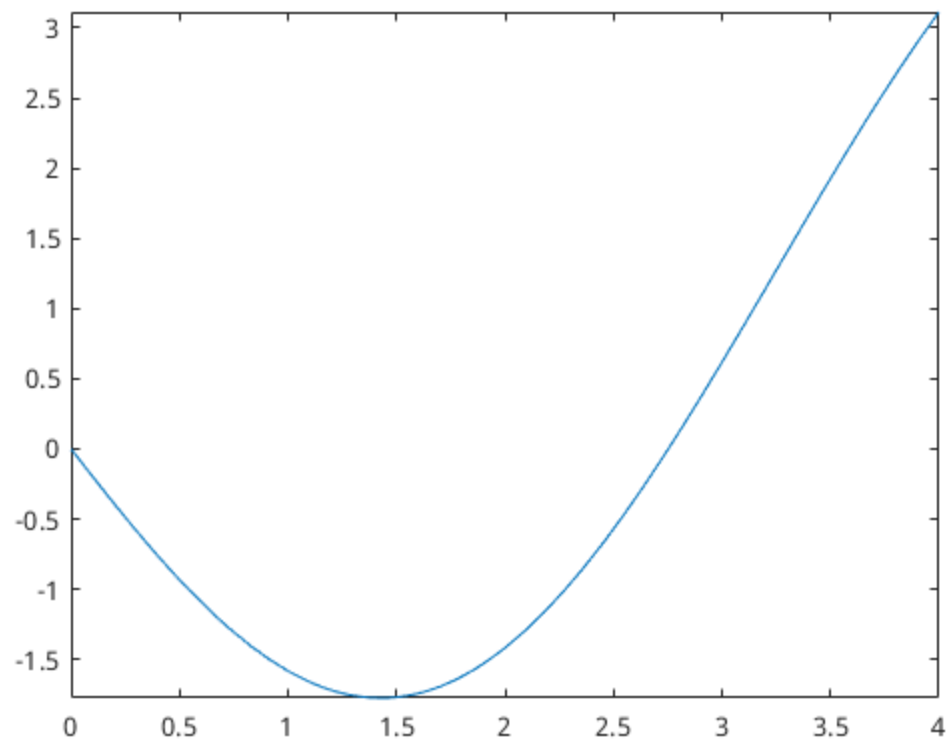
Warning: Function fails on array inputs. Use element-wise operators to increase speed.

```
xmin =
```

```
1.4276
```

```
fmin =
```

```
-1.7757
```



Golden Section Search

```
[x,fx] = goldmin(f,0,4)
```

```
x =
```

```
1.4276
```

```
fx =
```

```
-1.7757
```

Parabolic Interpolation

```
[x,fx] = paramin(f,0,4)
```

```
x =
```

```
1.4276
```

```
fx =  
-1.7757
```

Comparison of two meathods

```
tic, [x,fx,ea,iter] = goldmin(f,0,4), toc  
tic, [x,fx,ea,iter] = paramin(f,0,4), toc
```

```
x =  
1.4276
```

```
fx =  
-1.7757
```

```
ea =  
9.3079e-05
```

```
iter =  
29
```

```
Elapsed time is 0.000426 seconds.
```

```
x =  
1.4276
```

```
fx =  
-1.7757
```

```
ea =  
6.9349e-05
```

```
iter =  
6
```

```
Elapsed time is 0.000616 seconds.
```

fminbnd with options

```
options = optimset('display','iter');  
[f,fx]=fminbnd(f,0,4,options)
```

Func-count	x	f(x)	Procedure
1	1.52786	-1.76472	initial
2	2.47214	-0.629974	golden
3	0.944272	-1.53098	golden
4	1.42704	-1.77573	parabolic
5	1.42576	-1.77572	parabolic
6	1.42755	-1.77573	parabolic
7	1.42758	-1.77573	parabolic
8	1.42751	-1.77573	parabolic

Optimization terminated:
the current x satisfies the termination criteria using OPTIONS.TolX
of 1.000000e-04

f =

1.4275

fx =

-1.7757

Published with MATLAB® R2016a