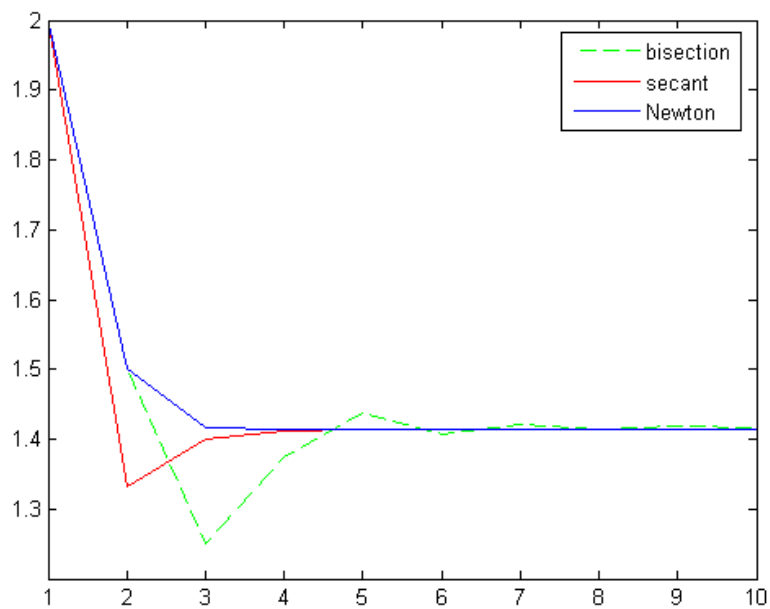


File: iter1a.m

```
clear all;
f=@(x)x^2-2;
df=@(x)2*x;
N=10;
t=1:N;
a0=2; b0=1;

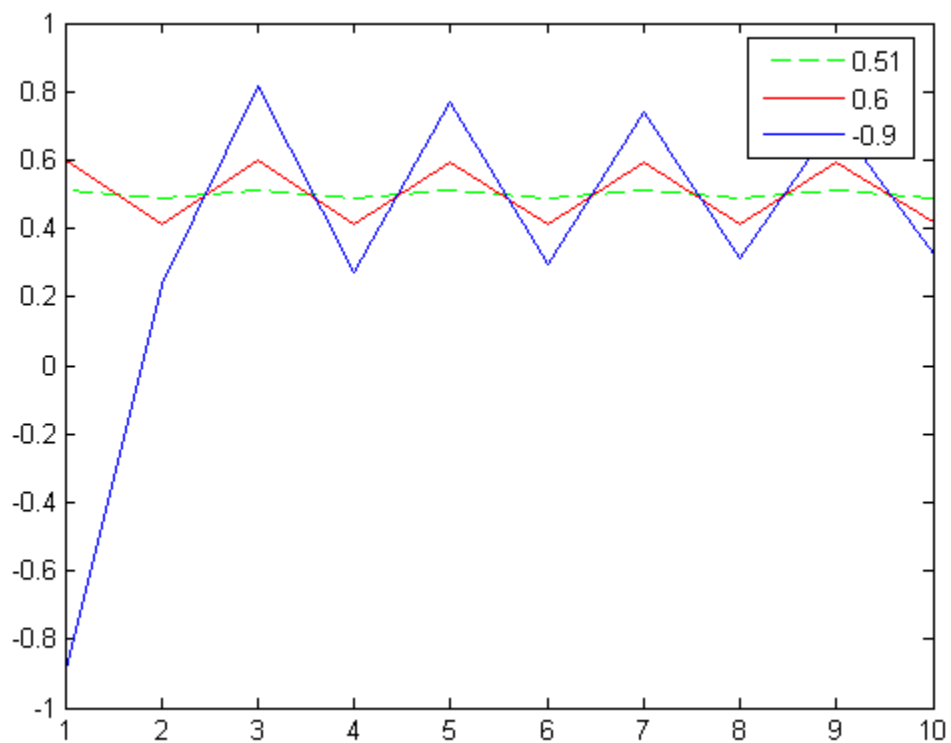
%Bisection
a=a0; b=b0; x(1)=a0;
for i=2:N
    c=(a+b)/2; x(i)=c;
    if f(c)>0
        a=c;
    else
        b=c;
    end
end
%Secant
a=a0; b=b0; y(1)=a0;
for i=2:N
    c=a-f(a)*(b-a)/(f(b)-f(a)); y(i)=c;
    if f(c)>0
        a=c;
    else
        b=c;
    end
end
%Newton
z(1)=a0;
for i=1:N-1
    z(i+1)=z(i)-f(z(i))/df(z(i));
end
plot(t,x,'--g',t,y,'r',t,z,'b');
legend('bisection','secant','Newton');
```



File: iter1.m

```
clear all;
func1=@(x) 1/(1+4*x^2);

N=10;
t=1:N;
x(1)=0.51; y(1)=0.6; z(1)=-0.9;
for i=1:N-1
    x(i+1)=func1(x(i));
    y(i+1)=func1(y(i));
    z(i+1)=func1(z(i));
end
plot(t,x,'--g',t,y,'r',t,z,'b' );
legend(num2str(x(1)),num2str(y(1)),num2str(z(1)) );
```



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File: func1.m

```
function y = func1(x)

y=1/(1+4*x^2);
% y=(x+2/x)/2;
% y=x^2-2;
```

File: [iter1.m](#)
File: [iter1a.m](#)
File: [analyzer.m](#)
File: [cascade.m](#)
File: [Julia.m](#)
File: [FractalJulia.m](#)

MATLAB programs: [fzero](#), [fsolve](#), [roots](#), [fminbnd](#), [fminsearch](#)