

### Sekantmethoden

```
f=@(x) exp(x)-sin(x)-2;

x=0:0.01:2;

plot(x,f(x))
grid on

x0=1; x1=1.5;
iter=1;

while abs(x1-x0)>0.5*1e-7
    f0=f(x0); f1=f(x1);
    t=f1*(x1-x0)/(f1-f0);
    x0=x1; x1=x1-t;
    iter=iter+1;
end
disp(['The final root is ' num2str(x1)])
disp(['After ' num2str(iter) ' iterations'])
```

## Contents

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## Main file ?vning2

```
clear all; close all;  
A=[1 2 0 0 0; 2 1 3 0 0; 0 3 1 3 0; 0 0 0 2 -3];  
b=[3 6 1 0 1]';  
x=[1 1 1 -1 -1]';  
bs=[2.95 6.05 1.04 -0.03 0.95]';  
xs=[-2.75 2.85 2.9 -3.47 -2.63]';
```

```
% V?lkonditionerat
```

```
%Relativfel i x
```

```
relx=norm(x-xs)/norm(x);
```

```
%Relativfel i b
```

```
relb=norm(b-bs)/norm(b);
```

```
%Konditionstal av A
```

```
condA=relx/relb;
```

## Uppgift 8.2

```
clear all; close all
```

```
x=4.5; y=4.5;  
a=@(x,y) sqrt(x^2+y^2);  
fel=0.2;
```

```
y_ostord=a(x,y);  
yx=a(x+fel,y);  
yy=a(x,y+fel);
```

```
feltot=abs(y_ostord-yx)+abs(y_ostord-yy);
```

```
%-----Testa alla kombintioner-----
```

```
y1=a(x+fel,y);  
y2=a(x-fel,y);  
y3=a(x,y+fel);  
y4=a(x,y-fel);
```

```

y5=a(x+fel,y+fel);
y6=a(x-fel,y+fel);
y7=a(x-fel,y-fel);
y8=a(x+fel,y-fel);

felvec=[y1 y2 y3 y4 y5 y6 y7 y8];
diffvec=[];
for i=1:length(felvec)
    diffvec=[diffvec; abs(y_ostord-felvec(i))];
end

max(diffvec)

```