

IRA Gyakorlat 2.

<http://mobil.nik.uni-obuda.hu/tantargyak/ira/segedanyagok/>

2015. ősz

Jelek szűrése

- Átlagolás

```
>> a=[1 3 5 7 9]
```

```
a =
```

```
1 3 5 7 9
```

```
>> mean(a)
```

```
ans =
```

```
5
```

Jelek szűrése

- Átlagolás

a =

0.3852 0.8565 0.9225 0.2568 0.5783

>> mean(a)

ans =

0.5999

Jelek szűrése

- Medián

a =

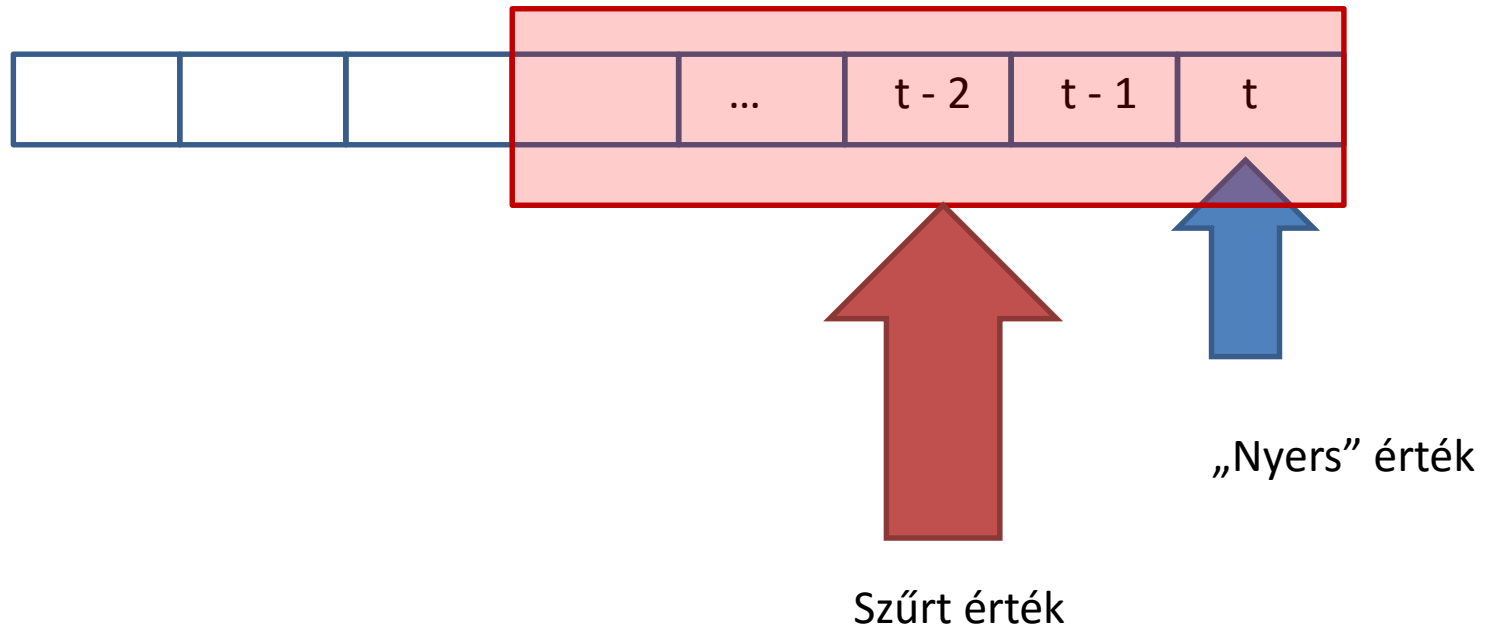
0.3852 0.8565 0.9225 0.2568 0.5783

>> median(a)

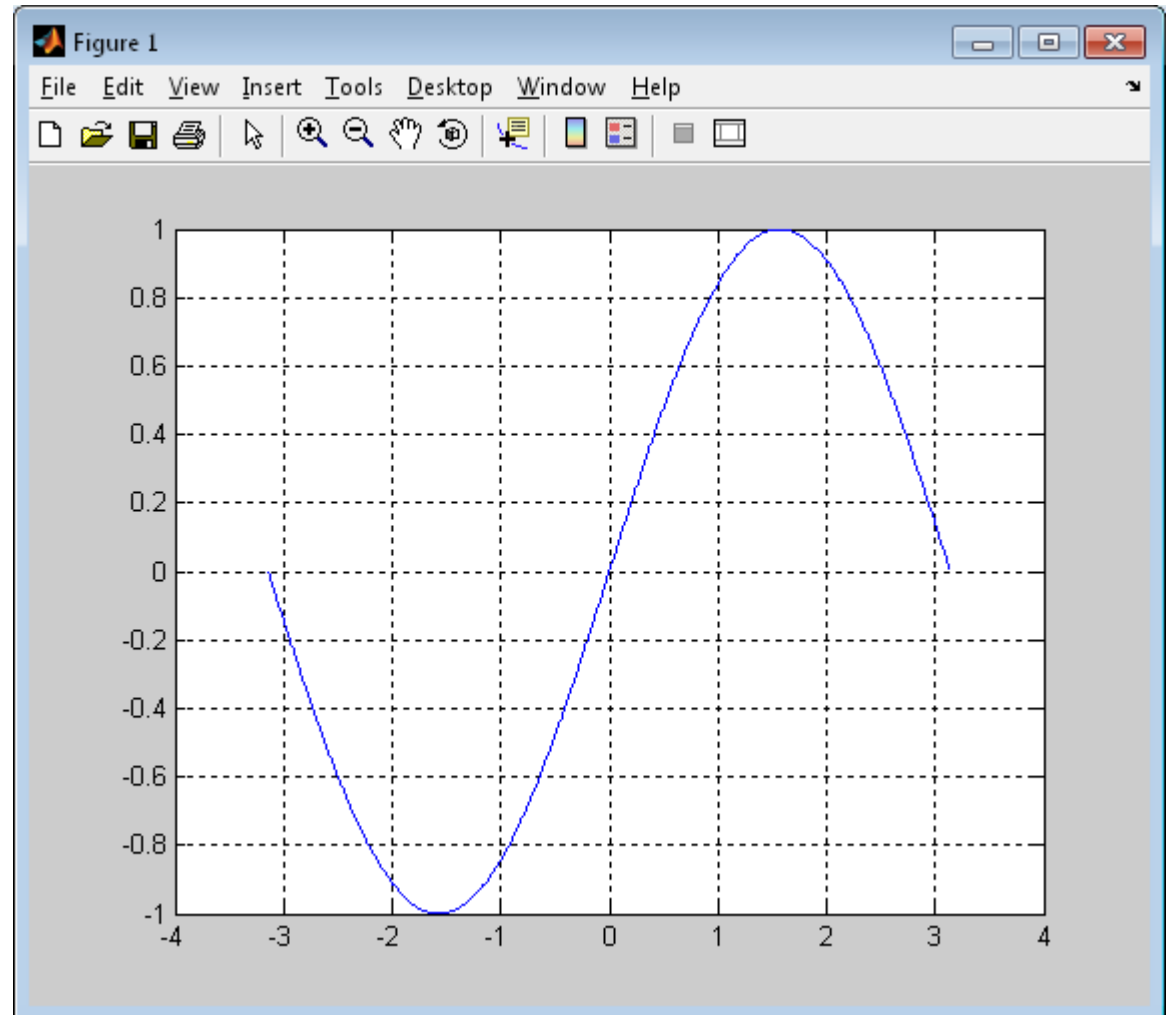
ans =

0.5783

Csúszó ablak



Alapjel



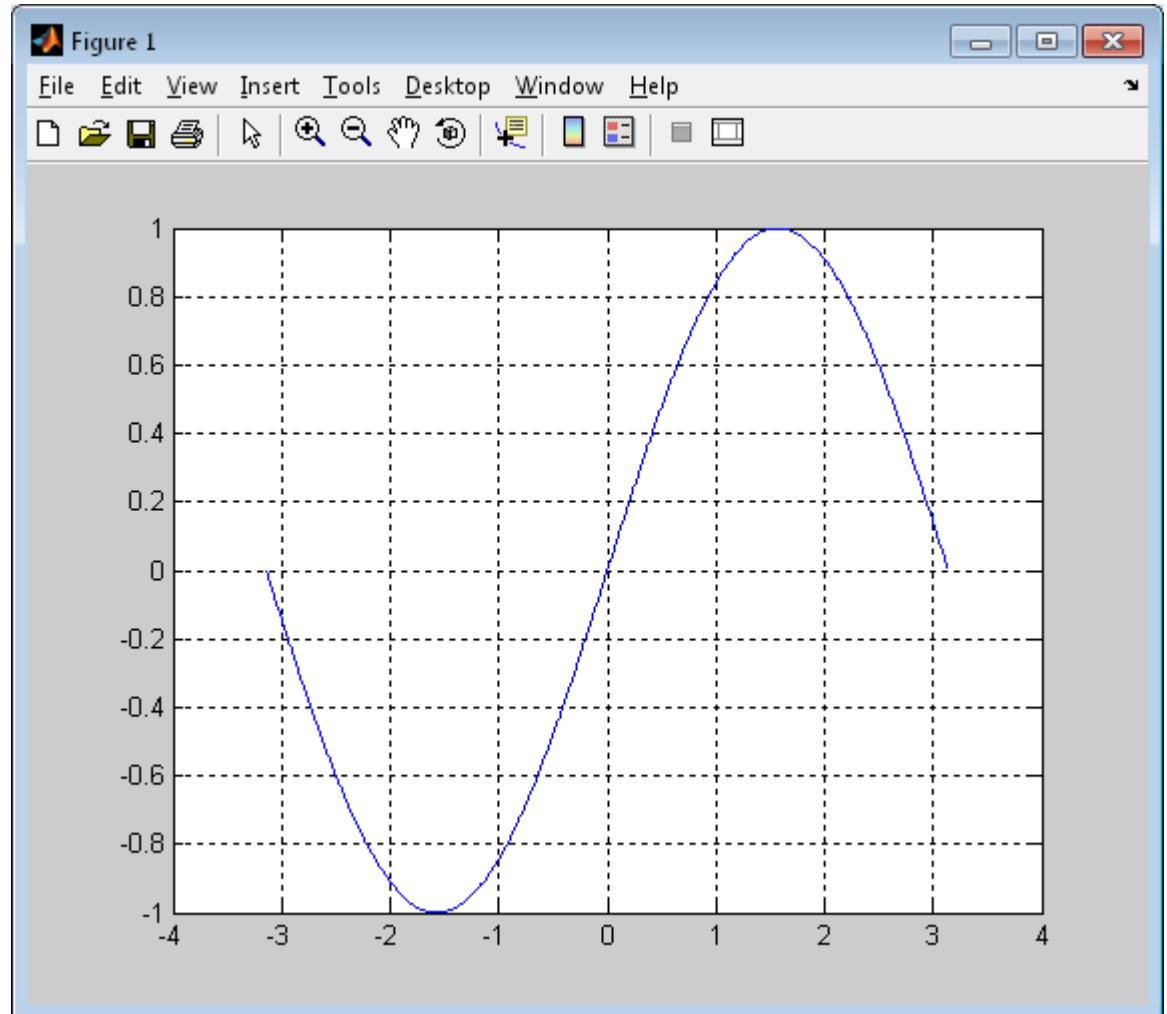
Alapjel

```
x=[-pi:0.01:pi];
```

```
y= sin(x);
```

```
plot(x,y);
```

```
grid;
```



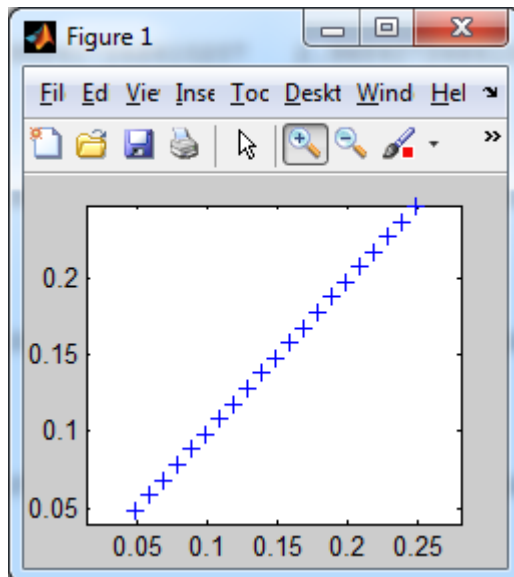
Plot tulajdonságok

`plot(x,y,'-');`

`plot(x,y,'.');`

`plot(x,y,'+');`

`plot(x,y,'*');`



`plot(x,y,'- ');`

`plot(x,y,'--');`

`plot(x,y,'-+');`

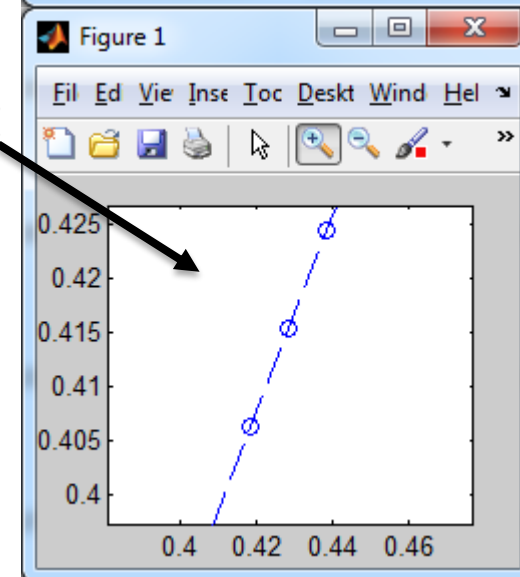
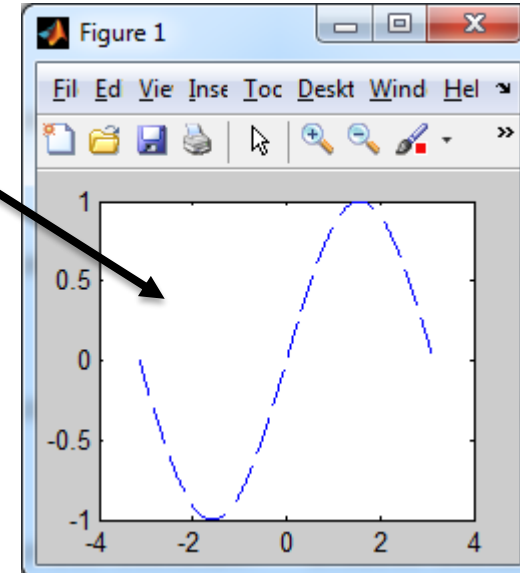
`plot(x,y,'-*');`

`plot(x,y,'-o');`

`plot(x,y,'-s');`

`plot(x,y,'--o');`

`plot(x,y,'--s');`



Plot tulajdonságok

```
plot(x,y,'-+r');
```

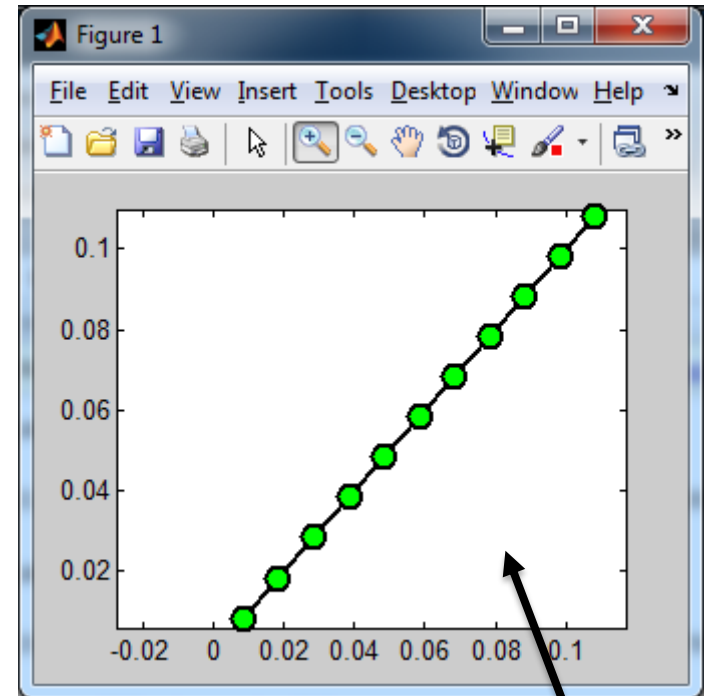
```
plot(x,y,'-+g');
```

```
plot(x,y,'-+b');
```

```
plot(x,y,'-+k');
```

```
plot(x,y,'-+k', 'LineWidth',2);
```

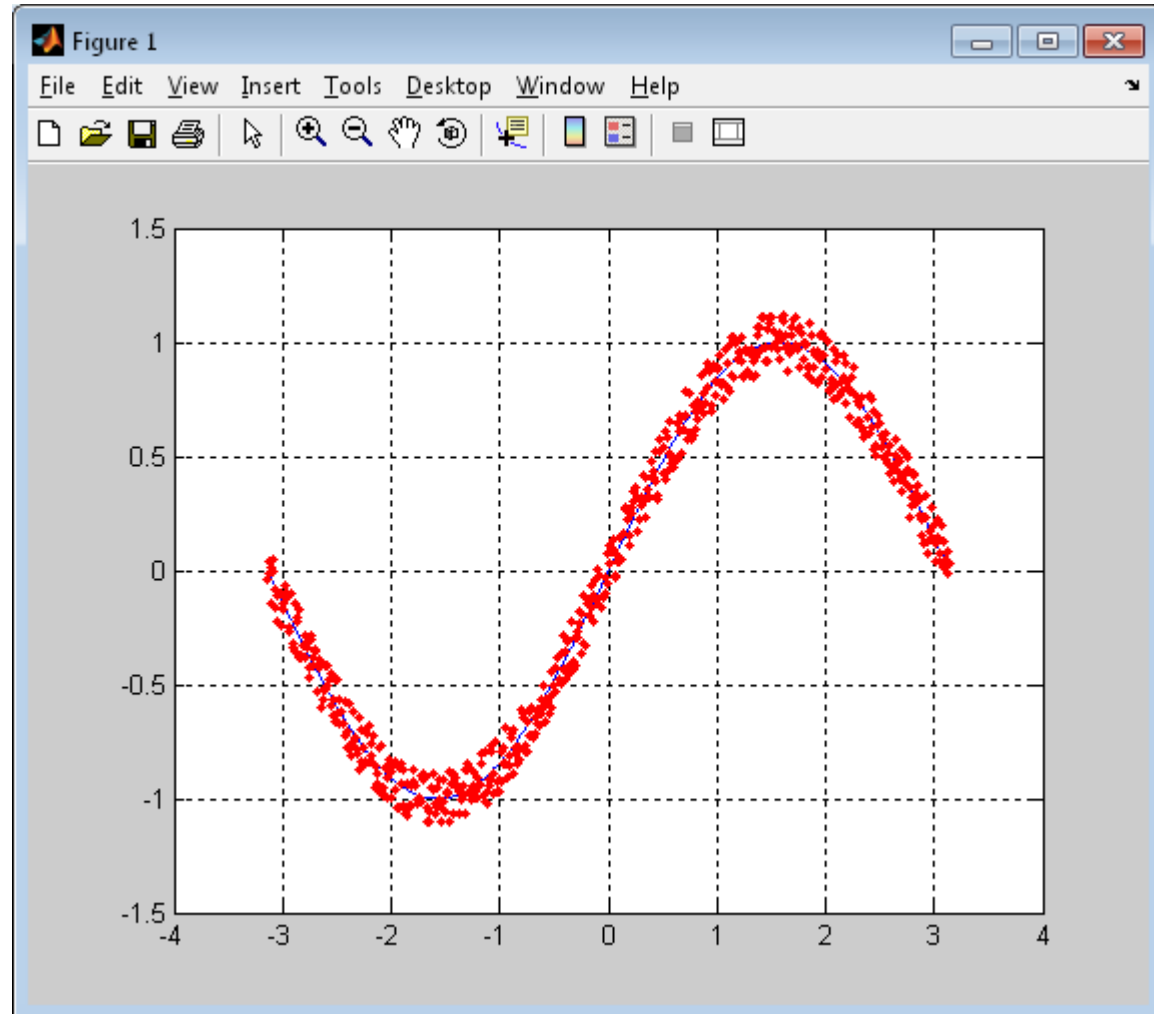
```
plot(x,y,'-ko', 'LineWidth',2,'MarkerEdgeColor','k',  
      'MarkerFaceColor','g','MarkerSize',10)
```



Zaj

```
x=[-pi:0.01:pi];  
y= sin(x);  
plot(x,y);  
grid;
```

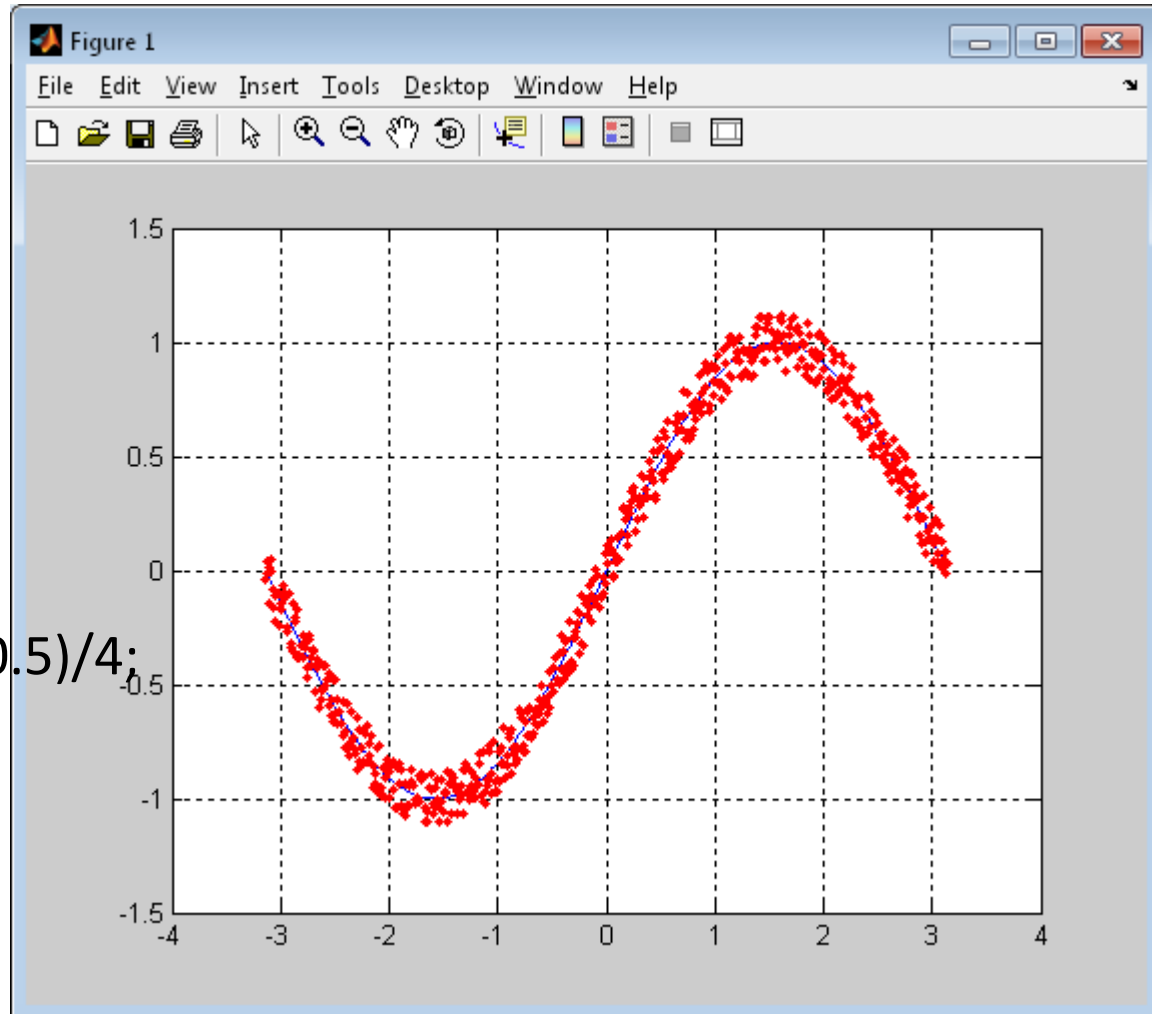
??? 😊



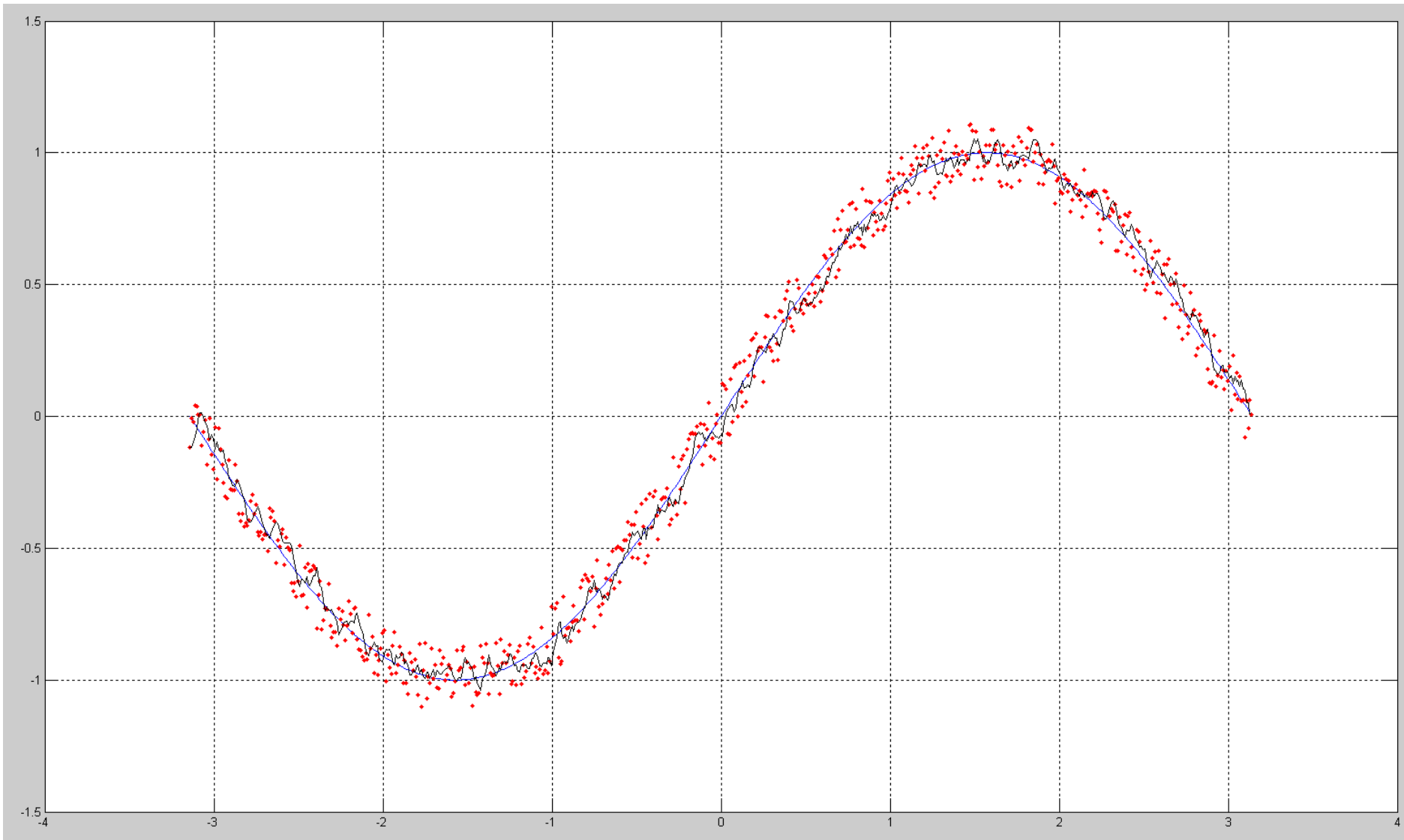
Zaj

```
x=[-pi:0.01:pi];  
y= sin(x);  
plot(x,y);  
grid;
```

```
y2=0;  
for i=1:length(x)  
    y2(i)=sin(x(i))+(rand(1)-0.5)/4;  
end  
hold on;  
plot(x,y2,'.r');
```



Csúszóablakos szűrés



Csúszóablakos szűrés

```
window_size=5;  
slidewindow=ones(1>window_size)*y2(1);  
y2_filtered=0;
```

```
for i=1:length(y2)
```



```
end;
```

```
plot(x,y,'-')  
hold on;  
plot(x,y2_filtered,'-k');
```

Csúszóablakos szűrés

```
windowSize=5;
slidewindow=ones(1,windowSize)*y2(1);
y2_filtered=0;

for i=1:length(y2)
    y2_filtered(i)=mean(slidewindow);
    %y2_filtered(i)=median(slidewindow);
    for j=1:length(slidewindow)-1
        slidewindow(j)=slidewindow(j+1);
    end;
    slidewindow(length(slidewindow))=y2(i);
end;

plot(x,y,'-')
hold on;
plot(x,y2_filtered,'-k');
```