

```
x=0:10
```

```
x = 1×11  
    0     1     2     3     4     5     6     7     8     9    10
```

```
y=[1 2 4 8 16 32 64 128 256 512 1024]
```

```
y = 1×11  
     1         2         4         8        16        32 ...
```

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

```
n=length(x)
```

```
n = 11
```

```
Sx=sum(x)
```

```
Sx = 55
```

```
Sy=sum(y)
```

```
Sy = 2047
```

```
Sx2=sum(x.^2)
```

```
Sx2 = 385
```

```
Sxy=sum(x.*y)
```

```
Sxy = 18434
```

```
A=[n Sx Sy;  
   Sx Sx2 Sxy]
```

```
A = 2×3  
    11     55    2047  
    55    385   18434
```

```
A(1,:)=A(1,:)/A(1,1);  
A(2,:)=A(2,:)-A(1,:)*A(2,1);  
A(2,:)=A(2,:)/A(2,2);  
A(1,:)=A(1,:)-A(2,:)*A(1,2)
```

```
A = 2×3  
    1.0000         0 -186.5909  
         0    1.0000    74.5364
```

```
a0=A(1,3)
```

```
a0 = -186.5909
```

```
a1=A(2,3)
```

```
a1 = 74.5364
```

```
f=@(X) a0+a1*X
```

```
f = function_handle with value:  
@(X)a0+a1*X
```

```
Y=f(x)
```

```
Y = 1×11  
-186.5909 -112.0545 -37.5182 37.0182 111.5545 186.0909 260.6273 335.1636 ...
```

```
hold on  
plot(x,Y)
```

```
Sx3=sum(x.^3)
```

```
Sx3 = 3025
```

```
Sx4=sum(x.^4)
```

```
Sx4 = 25333
```

```
Sx2y=sum(x.^2.*y)
```

```
Sx2y = 169978
```

```
A=[n Sx Sx2 Sy;  
    Sx Sx2 Sx3 Sxy;  
    Sx2 Sx3 Sx4 Sx2y]
```

```
A = 3×4  
    11      55      385     2047  
    55     385     3025    18434  
    385    3025    25333   169978
```

```
A(1,:)=A(1,:)/A(1,1);  
A(2,:)=A(2,:)-A(1,:)*A(2,1);  
A(3,:)=A(3,:)-A(1,:)*A(3,1)
```

```
A = 3×4  
104 ×  
    0.0001    0.0005    0.0035    0.0186  
         0    0.0110    0.1100    0.8199  
         0    0.1100    1.1858    9.8333
```

```
A(2,:)=A(2,:)/A(2,2);  
A(1,:)=A(1,:)-A(2,:)*A(1,2);  
A(3,:)=A(3,:)-A(2,:)*A(3,2)
```

```
A = 3×4  
104 ×  
    0.0001         0   -0.0015   -0.0187  
         0    0.0001    0.0010    0.0075  
         0         0    0.0858    1.6343
```

```
A(3,:)=A(3,+)/A(3,3);
A(2,:)=A(2,)-A(3,)*A(2,3);
A(1,:)=A(1,)-A(3,)*A(1,3)
```

```
A = 3x4
    1.0000    0    0    99.1259
         0    1.0000    0 -115.9415
         0    0    1.0000    19.0478
```

```
a0=A(1,4)
```

```
a0 = 99.1259
```

```
a1=A(2,4)
```

```
a1 = -115.9415
```

```
a2=A(3,4)
```

```
a2 = 19.0478
```

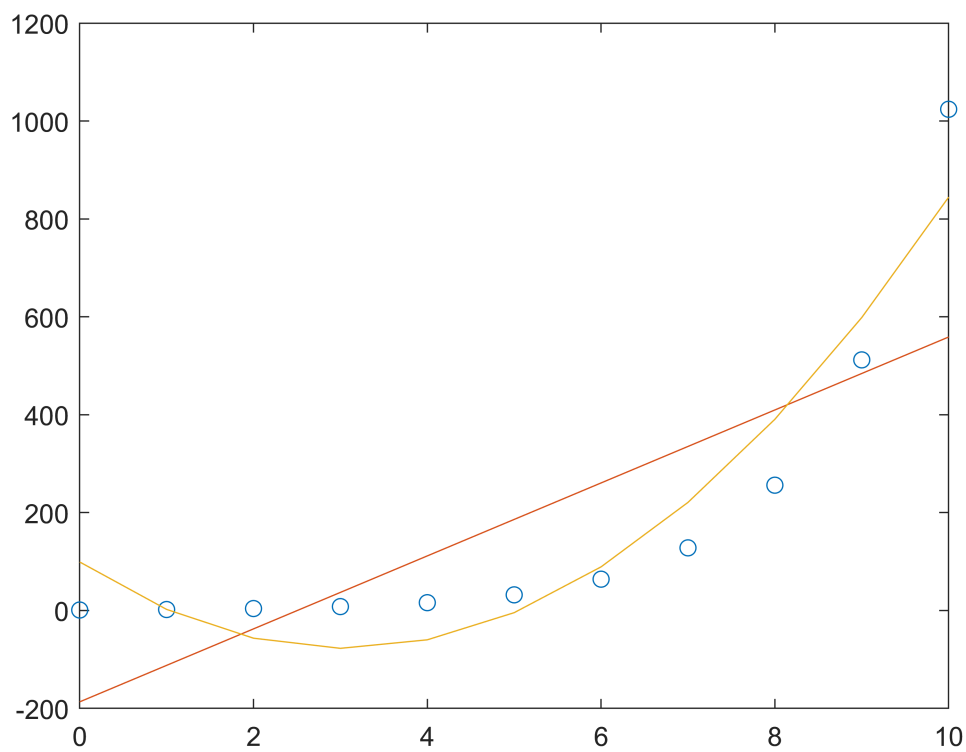
```
f=@(X) a0+a1*X+a2*X.^2
```

```
f = function_handle with value:
    @(X)a0+a1*X+a2*X.^2
```

```
Y=f(x)
```

```
Y = 1x11
    99.1259    2.2322 -56.5660 -77.2685 -59.8755 -4.3869    89.1972   220.8769 ...
```

```
hold on
plot(x,Y)
```



```
clf
x=0:10
```

```
x = 1×11
    0     1     2     3     4     5     6     7     8     9    10
```

```
y=[1 2 4 8 16 32 64 128 256 512 1024]
```

```
y = 1×11
     1         2         4         8        16        32 ...
```

```
Y=log(y)
```

```
Y = 1×11
     0     0.6931     1.3863     2.0794     2.7726     3.4657     4.1589     4.8520 ...
```

```
figure(2)
plot(x,Y,'o')
```

```
n=length(x)
```

```
n = 11
```

```
Sx=sum(x)
```

```
Sx = 55
```

```
Sy=sum(Y)
```

```
Sy = 38.1231
```

```
Sx2=sum(x.^2)
```

```
Sx2 = 385
```

```
Sxy=sum(x.*Y)
```

```
Sxy = 266.8617
```

```
A=[n Sx Sy;  
    Sx Sx2 Sxy]
```

```
A = 2×3  
    11.0000    55.0000    38.1231  
    55.0000   385.0000   266.8617
```

```
A(1,:)=A(1,+)/A(1,1);  
A(2,:)=A(2,)-A(1,)*A(2,1);  
A(2,:)=A(2,)/A(2,2);  
A(1,:)=A(1,)-A(2,)*A(1,2)
```

```
A = 2×3  
    1.0000         0   -0.0000  
         0    1.0000    0.6931
```

```
a0=A(1,3)
```

```
a0 = -3.1086e-15
```

```
a1=A(2,3)
```

```
a1 = 0.6931
```

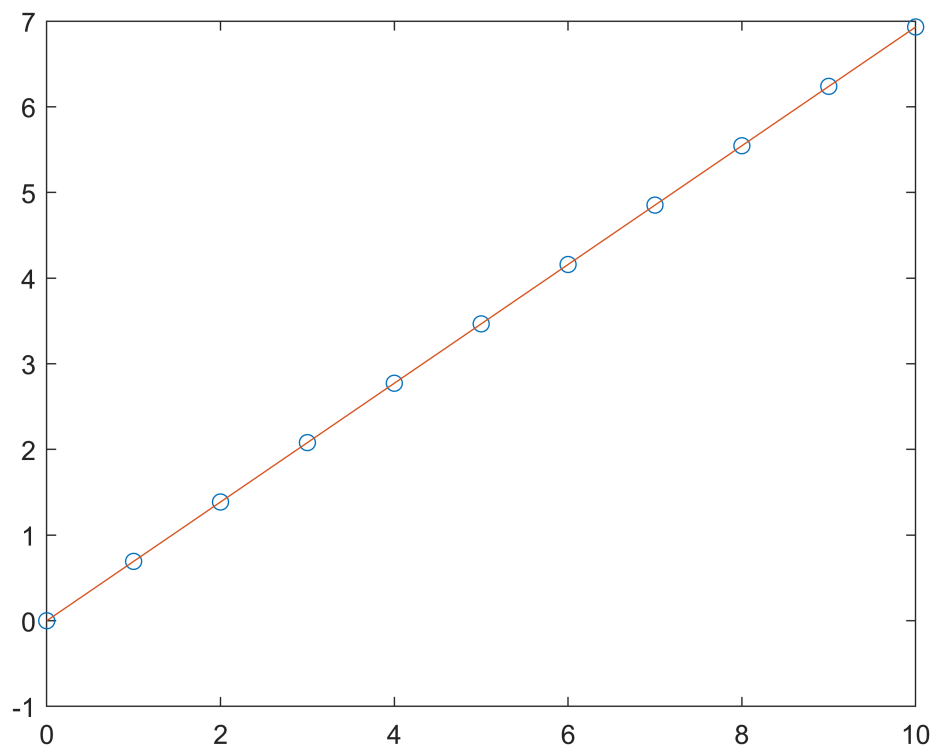
```
f=@(equis) a0+a1*equis
```

```
f = function_handle with value:  
    @(equis)a0+a1*equis
```

```
yes=f(x)
```

```
yes = 1×11  
   -0.0000    0.6931    1.3863    2.0794    2.7726    3.4657    4.1589    4.8520 ...
```

```
hold on  
plot(x,yes)
```



```
clf
figure(3)
b=exp(a0)
```

```
b = 1.0000
```

```
m=a1
```

```
m = 0.6931
```

```
fe=@(X) b*exp(m*X)
```

```
fe = function handle with value:
      @(X)b*exp(m*X)
```

```
X=0:0.1:10
```

```
X = 1×101
      0      0.1000      0.2000      0.3000      0.4000      0.5000      0.6000      0.7000 ...
```

```
Y=fe(X)
```

```
Y = 1×101
103 ×
      0.0010      0.0011      0.0011      0.0012      0.0013      0.0014      0.0015      0.0016 ...
```

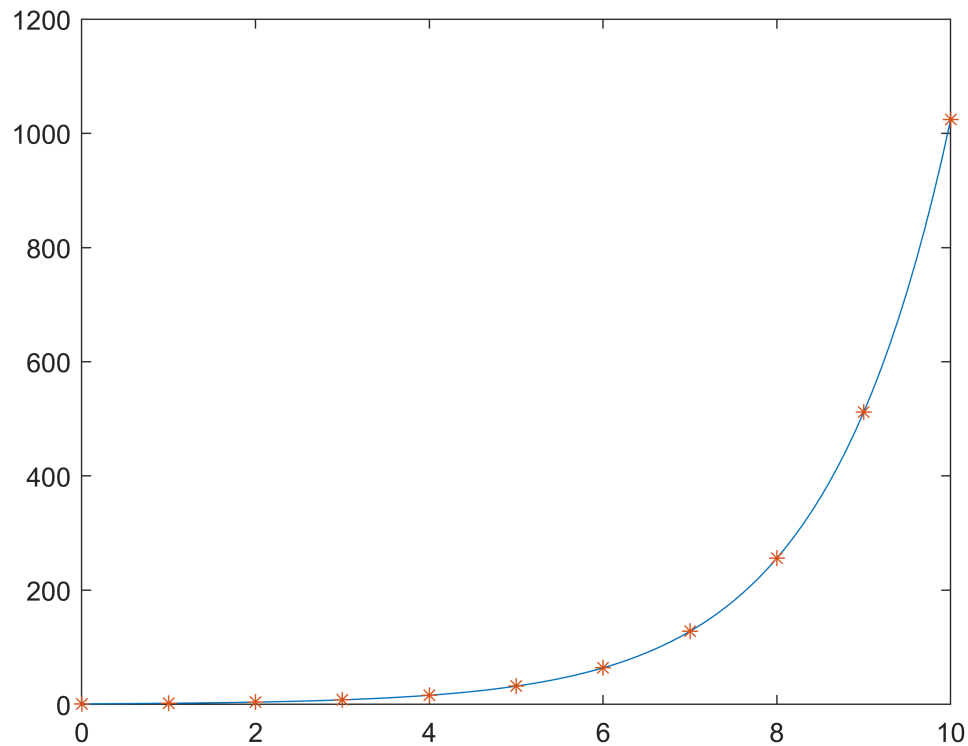
```
plot(X,Y)
hold on
x=0:10
```

```
x = 1×11
    0    1    2    3    4    5    6    7    8    9   10
```

```
y=[1 2 4 8 16 32 64 128 256 512 1024]
```

```
y = 1×11
    1    2    4    8   16   32 ...
```

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



```
St=sum((y-mean(y)).^2)/n
```

```
St = 9.2470e+04
```

```
Sr=sum((fe(x)-y).^2)/n
```

```
Sr = 5.2153e-25
```

```
r=sqrt((St-Sr)/St)
```

```
r = 1
```