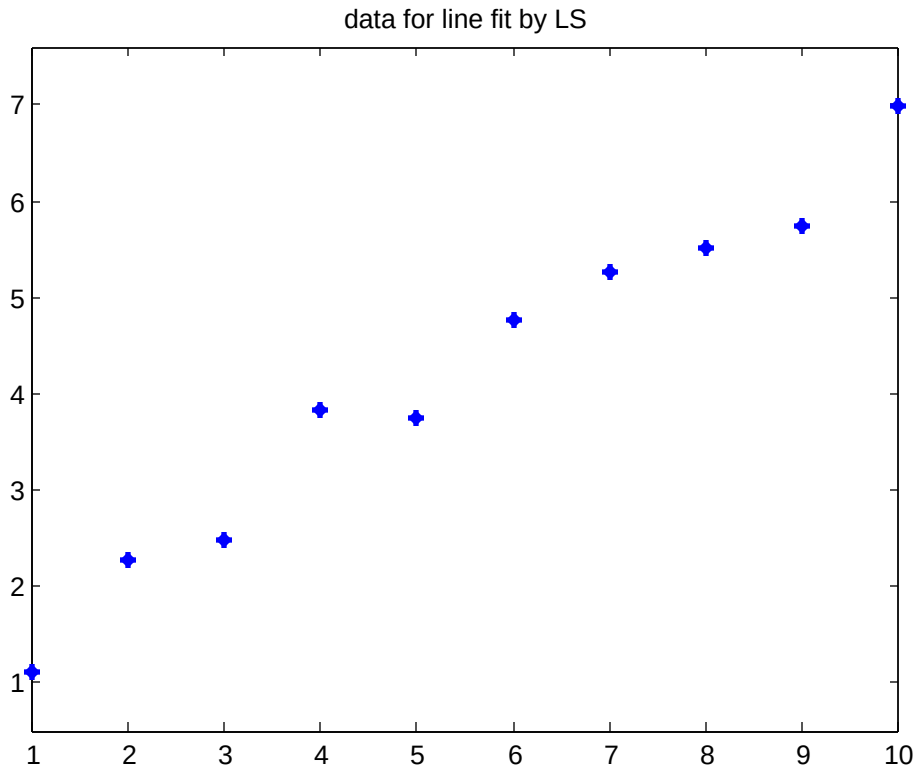
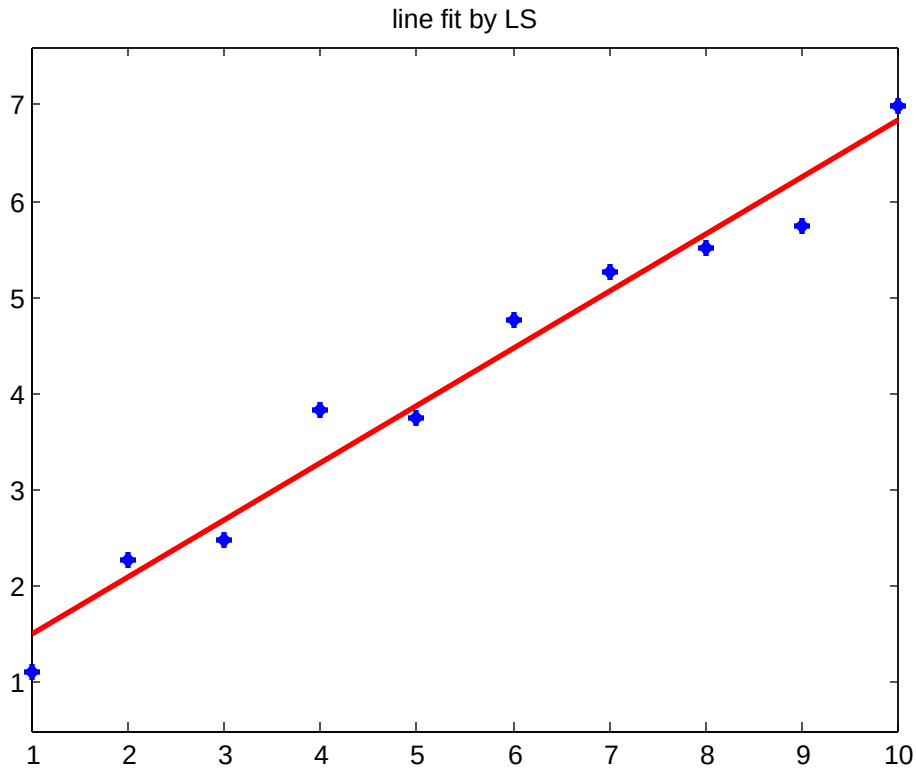
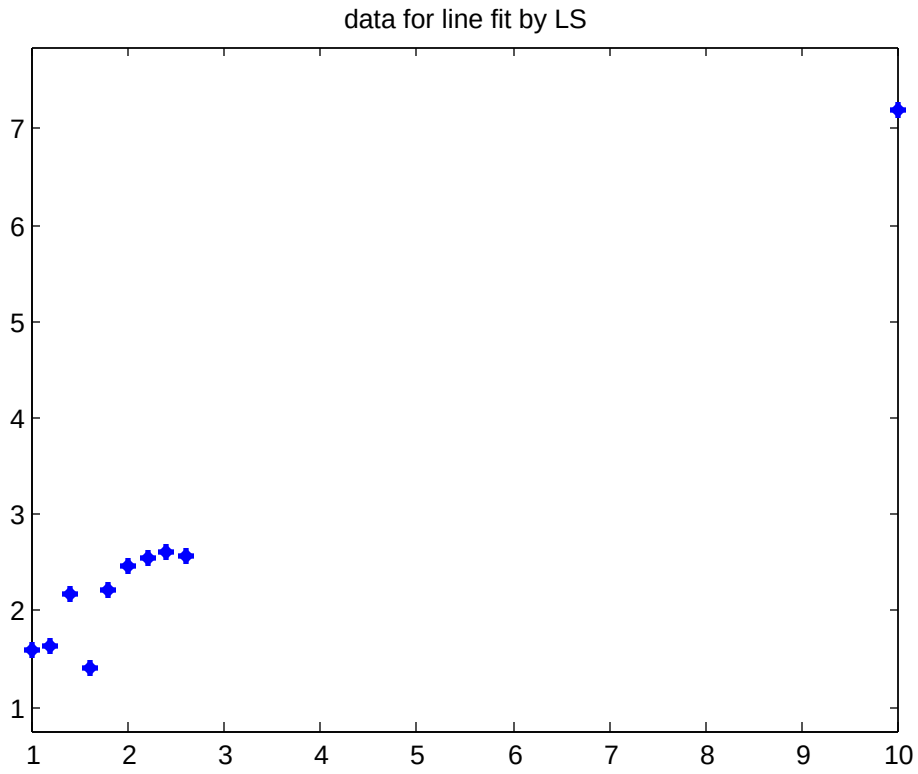
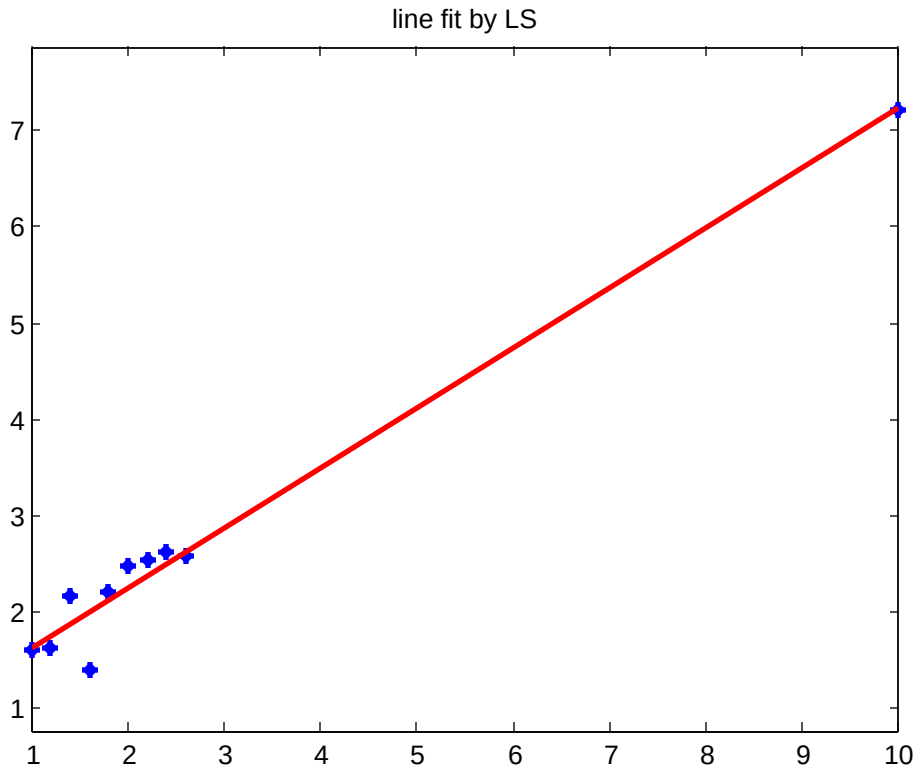

data for line fit by LS
1
2
3
4
5
6
7
1
2
3
4
5
6
7
8
9
10


line fit by LS
1
2
3
4
5
6
7
1
2
3
4
5
6
7
8
9
10

```
red_num_ex1

p =

    0.5915
    0.9208


v =

    0.3935
   -0.1734
    0.2123
   -0.5377
    0.1199
   -0.2888
   -0.2044
    0.1294
    0.4956
   -0.1464


rd =

    0.6545
    0.7515
    0.8242
    0.8727
    0.8970
    0.8970
    0.8727
    0.8242
    0.7515
    0.6545


sumrd =

    8.0000

diary off
```

```
% red_num_ex1.m  1-dec-08
% redundancy number example

x=[1;2;3;4;5;6;7;8;9;10];
m=0.6;
b=1.0;
e=random('norm',0,1,10,1);
e=e*0.3;
y=zeros(10,1);
for i=1:10
  y(i)=m*x(i) + b + e(i);
  end
plot(x,y,'b*','linewidth',2);
axis equal
title('data for line fit by LS');
W=eye(10)*(1/(0.3^2));
Q=inv(W);
sigma0_sqr=1.0;
B=zeros(10,2);
f=zeros(10,1);

for i=1:10
  B(i,:)=[-x(i) -1];
  f(i)=-y(i);
  end

N=B'*W*B;
t=B'*W*f;
del=inv(N)*t;
p=del
mm=p(1);
bb=p(2);
figure(2);
plot(x,y,'b*','linewidth',2);
hold on
px=[1 10];
py=[mm*1+bb mm*10+bb];
plot(px,py,'-r','linewidth',2);
axis equal
title('line fit by LS');
v=f-B*del
Qvv=Q - B*inv(N)*B';
Wbar=Qvv*W;
rd=zeros(10,1);
for i=1:10
  rd(i)=Wbar(i,i);
  end
rd
sumrd=sum(rd)
```


data for line fit by LS
7
6
5
4
3
2
1
1
2
3
4
5
6
7
8
9
10


line fit by LS
7
6
5
4
3
2
1
1
2
3
4
5
6
7
8
9
10

```
red_num_ex2

p =

    0.6223
    1.0091


v =

    0.0314
    0.1313
   -0.2881
    0.6070
   -0.0792
   -0.2149
   -0.1611
   -0.1107
    0.0551
    0.0292


rd =

    0.8583
    0.8680
    0.8763
    0.8835
    0.8893
    0.8939
    0.8972
    0.8992
    0.9000
    0.0343


sumrd =

     8

diary off
```

```
% red_num_ex2.m  1-dec-08
% redundancy number example
% skew data to one side to show effect on rn's

x=[1;1.2;1.4;1.6;1.8;2.0;2.2;2.4;2.6;10];
m=0.6;
b=1.0;
e=random('norm',0,1,10,1);
e=e*0.3;
y=zeros(10,1);
for i=1:10
  y(i)=m*x(i) + b + e(i);
  end
plot(x,y,'b*','linewidth',2);
axis equal
title('data for line fit by LS');
W=eye(10)*(1/(0.3^2));
Q=inv(W);
sigma0_sqr=1.0;
B=zeros(10,2);
f=zeros(10,1);

for i=1:10
  B(i,:)=[-x(i) -1];
  f(i)=-y(i);
  end

N=B'*W*B;
t=B'*W*f;
del=inv(N)*t;
p=del
mm=p(1);
bb=p(2);
figure(2);
plot(x,y,'b*','linewidth',2);
hold on
px=[1 10];
py=[mm*1+bb mm*10+bb];
plot(px,py,'-r','linewidth',2);
axis equal
title('line fit by LS');
v=f-B*del
Qvv=Q - B*inv(N)*B';
Wbar=Qvv*W;
rd=zeros(10,1);
for i=1:10
  rd(i)=Wbar(i,i);
  end
rd
sumrd=sum(rd)
```