```
type polyplot
```

```
function []=polyplot(a,b,p)
x=(a:(b-a)/50:b)';
y=polyval(p,x);
plot(x,y);
end
```

```
type lstsqline
```

```
function c=lstsqline(x,y)
hold off
format
format compact
x=x';
y=y';
a=x(1);
m=length(x);
b=x(m);
disp('the design matrix is')
X=[x,ones(m,1)]
disp('the parameter vector is')
c=lscov(X,y)
disp('the norm of the residual vector is')
N=norm(y-X*c)
plot(x,y,'*'),hold on
polyplot(a,b,c');
fprintf('the least-squares regression line is\n')
P=poly2sym(c)
c1 = X\y;
%Least square regression line confirmation
if (abs(c - closetozeroroundoff(c1,7)) < 0.0000001)
    disp('c is the least-squares solution')
hold off
end
```

```
x = [0,2,3,5,6], y = [1,4,3,4,5]
```

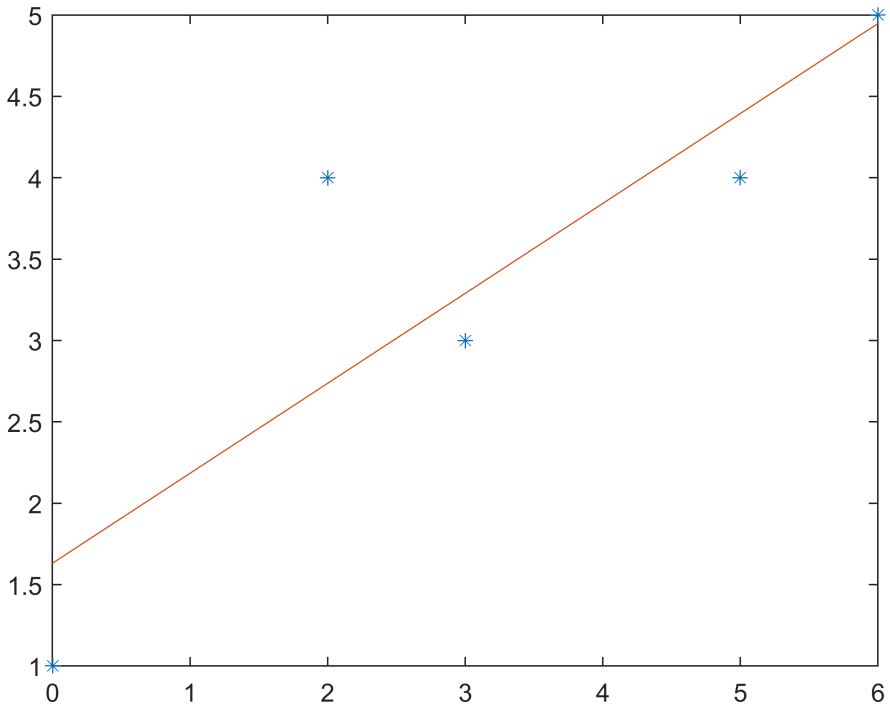
```
x = 1×5
     0     2     3     5     6
y = 1×5
     1     4     3     4     5
```

```
c = lstsqline(x,y)
```

```
the design matrix is
X = 5×2
     0     1
     2     1
     3     1
     5     1
     6     1
the parameter vector is
c = 2×1
    0.5526
    1.6316
the norm of the residual vector is
N = 1.4956
the least-squares regression line is
P =
```

$$\frac{21\,x}{38}+\frac{31}{19}$$

```
c is the least-squares solution
```




```
c = 2×1
    0.5526
    1.6316
```