非均质刚体转动惯量测定实验的作图代码示例：

J-T2.m

clear;clc;

T2=[1.305 1.138 0.998 0.867 0.755 1.458].^2;

J=[7.52 5.32 3.52 2.12 1.12 10.12];

k=polyfit(T2,J,1);

T2p=-2:30;

Jp=polyval(k,T2p,1);

T2t=1.082;

Jt=polyval(k,T2t,1);

p1=plot(T2p,Jp,'k-','linewidth',2);

hold on

p2=plot(T2,J,'b.','markersize',15);

p3=plot(T2t,Jt,'r.','markersize',25);

axis([0 4 -3 20])

grid on

axis on

title('图6-2 质点系转动惯量-三线摆振动周期关系示意');

xlabel('三线摆振动周期平方T^2/s^2');

ylabel('质点系转动惯量J/10^{-5} kg\*m^2');

legend([p1,p2,p3],{'J-T^2关系曲线','J-T^2实测数据点','发动机摇臂的转动惯量预测值'});

Jpj=0;T2pj=0;r2=0;dk=0;dJ2=0;ddJ2=0;dT22=0;T22=0;dd=0;

for i=1:6

Jpj=Jpj+J(i)/6;

T2pj=T2pj+T2(i)/6;

end

for i=1:6

dJ2=dJ2+(J(i)-Jpj).^2;

ddJ2=ddJ2+(J(i)-polyval(k,T2(i),1)).^2;

dT22=dT22+(T2(i)-T2pj).^2;

T22=T22+(T2(i)^2);

end

r2=1-ddJ2/dJ2;

dk=sqrt(ddJ2/(dT22\*4));

dd=sqrt(T22\*ddJ2/(dT22\*4\*6));

fprintf("一次项系数为%f,常数项系数为%f,可决系数为%f,一次项和常数项误差分别为%f和%f,发动机摇臂转动惯量为%f",k(1)\*100000,k(2),r2,dk\*100000,dd,Jt);

%一次项系数为576755.441035,常数项系数为-2.199925,可决系数为0.999683,一次项和常数项误差分别为5138.332294和0.069505,发动机摇臂转动惯量为4.040569>>

