%--------------第一题----------------------

N1=100;

D1=0.5;

N2=50;

D2=2;

x=0:1:180;

f1=zeros(181,1);

for i=1:181

f1(i)=abs(sin(pi\*N1\*D1\*cos(x(i)\*(pi/180)))/sin(pi\*D1\*cos(x(i)\*(pi/180))));

end;

plot(x,f1);

xlabel('$\phi$','Interpreter','LaTex')

ylabel('$\frac{\sin \pi N\frac{d}{\lambda }\cos \phi}{\sin\pi\frac{d}{\lambda}\cos \phi }$','Interpreter','laTex');

hold on;

f2=zeros(181,1);

for i=1:181

f2(i)=abs(sin(pi\*N2\*D2\*cos(x(i)\*(pi/180)))/sin(pi\*D2\*cos(x(i)\*(pi/180))));

end;

plot(x,f2,'r.-');

legend({'$N1=100,D/\lambda=0.1$','$N2=50,D/\lambda=2$'},'interpreter','latex');

%------------------------第二题------------------------------

figure(2)

num=1000;

x=1:num;

r=power(x,0.5);

d=[137.51,137.45,137.65,137.92];

therta=zeros(4,1000);

for i=1:4

therta(i,:)=pi\*d(i)\*x/180;

end

subplot(2,2,1)

polar(therta(1,:),r,'r')

subplot(2,2,2)

polar(therta(2,:),r,'g')

subplot(2,2,3)

polar(therta(3,:),r,'b')

subplot(2,2,4)

polar(therta(4,:),r,'h')

axis off;

%----------------第三题-------------------------------

figure(3)

seed=10000;

A=rand(12,seed);

B=sum(A);

hist(B,50);

hold on;

st=std2(B);

mea=mean(B);

xa=linspace(2,10,60);

py=pdf('norm',xa,mea,st)\*8/60\*seed;

plot(xa,py,'r-.');



