

Q1:

```
>> rng ( 'default' ) , A = rand(3,5);
```

%得到单下标

```
>> ind = find ( A > 0.5 )
```

```
ind =1
```

```
2
```

```
4
```

```
5
```

```
8
```

```
9
```

```
10
```

```
12
```

```
13
```

```
15
```

```
>> [ rowsub , colsub ] = ind2sub ( [3,5] , ind );
```

% 得到全下标，篇幅限制，此处输出不过行

```
>> for i = 1 : length(ind)
```

```
disp([ ' ( ' , int2str(rowsub(i)) , ' , ' , int2str(colsub(i)) , ' ) ' ])
```

```
end
```

```
(1,1) (2,1) (1,2) (2,2) (2,3) (3,3) (1,4) (3,4) (1,5) (3,5)
```

Q2:

```
>> x = -3*pi : pi/15 : 3*pi;
```

```
>> y = x ;
```

```
>> [ X , Y ] = meshgrid ( x , y ) ;
```

```
>> warning off;
```

```
>> Z = sin(X) .* sin(Y) ./ X ./ Y ;
```

1)

% 得到非数数据的数目

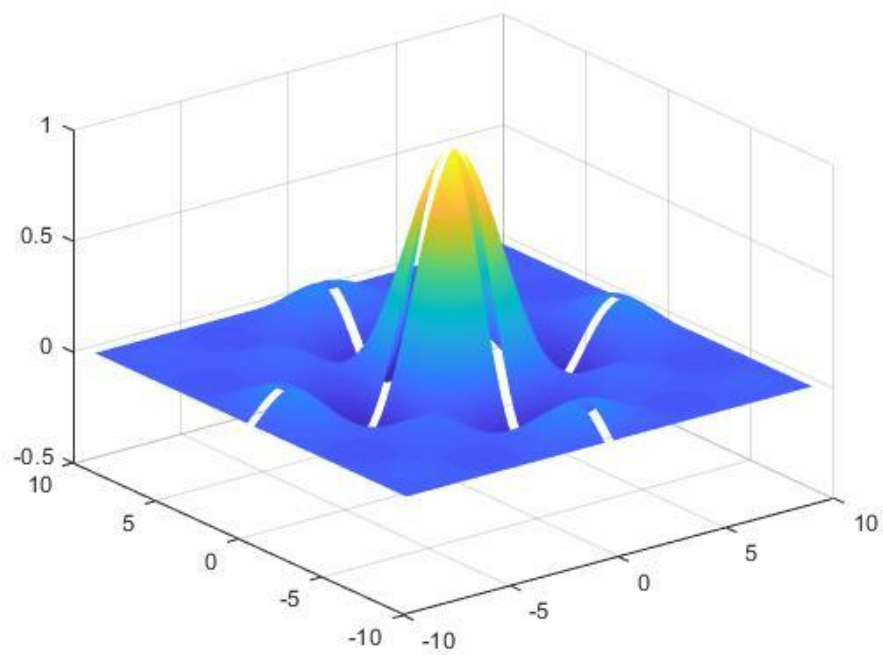
```
>> len=length(find(isnan(Z)=1))
```

```
len =
```

```
181
```

2)

```
>> surf( X , Y , Z ) ; shading interp
```

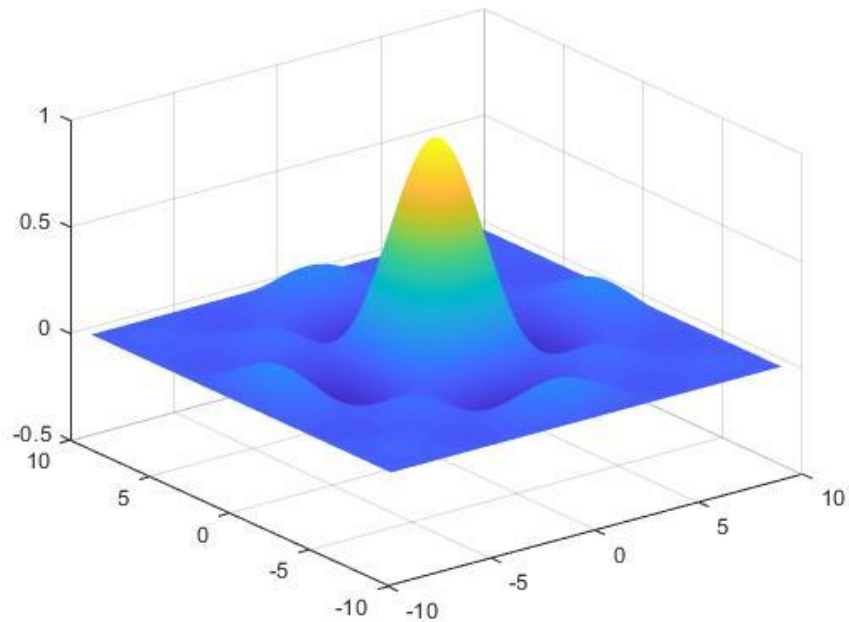


3)

```
>> X(X==0) = realmin; Y(Y==0) = realmin;
```

```
>> Z = sin(X) .* sin(Y) ./ X ./ Y;
```

```
>> surf(X, Y, Z); shading interp
```



Q3:

```
function [x] = mysolve(A,b)
```

```
% 高斯消元法
```

```
C=[A,b];
```

```
RA=rank(A);
```

```
RC=rank(C);
```

```
n=length(b);
```

```
if RA~=RC
```

```
    disp('无解')
```

```
    return
```

```
elseif RA<n
```

```
    disp('无穷个解')
```

```
    return
```

```
else
```

```
    disp('有且仅有一个解')
```

```
    x=zeros(n,1);
```

```

    for i=1:n-1
        for k=i+1:n
            m=C(i,i)/C(k,i);
            C(k,:)=C(k,:)*m-C(i,:);
        end
    end
    for i=n:-1:1
        x(i)=(C(i,end)-C(i,1:end-1)*x)/C(i,i);
    end
return
end

```

```
>> c=A\b;
```

```
>> x=mysolve(A,b);
```

有且仅有一个解

```
>> norm(x-c)
```

```
ans =
```

```
6.1198e-09
```

Q4（选做）：

% 载入文件中变量到工作区

```
>> load('W5Q4.mat')
```

1)

% PCA 降维

```
>> [v,d]=eigs(cov(F'))
```

```
>> X=v'*F
```

% 检验维数

```
>> size(X)
```

```
ans =
```

```
6      1000
```

2)不会 QAQ