```
%6.1
a=magic(3) %設 a 為一個 3*3 矩陣
b=a(:,2);c=a(:,3);%將 2,3 col 設為 a,b
a(:,2)=c;a(:,3)=b;%將 c 帶回  col2,b 帶回  col3
disp(a);
a(:,4)=[0 0 0]'%加入第 4column
a=[a(1,:) ; [1 1 1 1] ; a(2:end,:)]%插入第 2row
a(:,2)=[] %remove the second column

%6.2

n = 6;
P = zeros(n); % all elements set to zero
for i = 3:6
    P(i,i-1) = 2/3;
    P(i-2,i-1) = 1/3;
end
P(1,1) = 1;
P(6,6) = 1;
x0 = [1 0 0 0 0 0]'; % initial position of the student, remember x0 must be a column
vector!
% x0 = [0 1 0 0 0 0]'; % Try each x0 to see the result
% x0 = [0 0 1 0 0 0]';
% x0 = [0 0 0 1 0 0]';
% x0 = [0 0 0 0 1 0]';
% x0 = [0 0 0 0 0 1]';

x = x0;
for t = 1:50
    x = P*x;
    disp([t x'])
end



% Anoter way to compute the final x from the initial position x0
Pfinal = P^50 % Note the limiting probabilities in the first and the last rows
```

```
xfinal = Pfinal*x0 % Anoter way to compute the final x from the initial position x0

%6.3
A=[2 -1 1;1 1 1;3 -1 -1]
b=[4 3 1]'
x=A\b;
r=A*x-b%residual
det(A)
rcond(A)
%6.4
A=[1 5;1.5 7.501]
b=[17 25.503]'
x=A\b;%得 x=2 y=3
r=A*x-b%residual

det(A)
rcond(A)
b1=[17 25.501]' %改變方程式的值
x1=A\b1 %解答發生很大變化
r1=A*x1-b1 %residual

b2=[17 25.502]' %改變方程式的值
x2=A\b2 %解答發生很大變化
r1=A*x2-b2 %residual

b3=[17 25.504]'%改變方程式的值
x3=A\b3 %解答發生很大變化
r1=A*x3-b3 %residual

%6.6
a=[2 1 -1;-3 -1    2;-2 1 2];
b=[8 -11 -3];
x = mygauss(a, b) %x=[2 3 -1]'
% Function file mygauss.m
function x = mygauss(a, b)
n = length(a);
a(:,n+1) = b;
for k = 1:n
```

```
        a(k,:) = a(k,:)/a(k,k); % pivot element must be 1
        for i = 1:n
            if i ~= k
                a(i,:) = a(i,:) - a(i,k) * a(k,:);
            end
        end
end
% solution is in column n+1 of a:
x = a(:,n+1);
```