%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);