%% Part A

% q1

A=[7 8 9 ; 6 1 2 ; 5 4 3]

B=magic(3)

x=max(A,B)

y= sum(max(x,[],2)) > sum(max(x))

A =

7 8 9

6 1 2

5 4 3

B =

8 1 6

3 5 7

4 9 2

x =

8 8 9

6 5 7

5 9 3

y =

0

% q2

i=find(magic(3)'>magic(3))

a=eye(3)\*magic(3)

b=a(:)

c=b(i)

i =

3

4

8

a =

8 1 6

3 5 7

4 9 2

b =

8

3

4

1

5

9

6

7

2

c =

4

1

7

% q3

M=magic(3)

A=sum([M,M]>4)

A=sum(A>1)

M =

8 1 6

3 5 7

4 9 2

A =

1 2 2 1 2 2

A =

4

% q4

q=[ 5 2 ; 1 0]

w=min(q,2)

t=mode(w(:))

q =

5 2

1 0

w =

2 2

1 0

t =

2

% q5

a=linspace(1,25,9)

b=reshape(a,size(eye(3)))

c=eye(3)\*18

d=sum(mean(diag(any(c>b))))

a =

1 4 7 10 13 16 19 22 25

b =

1 10 19

4 13 22

7 16 25

c =

18 0 0

0 18 0

0 0 18

d =

0.6667

%% Part B

function U = floata(V,n)

%% FLOATA calculates the floating average of every consecutive n cells in vector V

if nargin ==0 % no parameters were passed

U=[];

return

end

if nargin==1 % Only V was passed

n=3;

end

if n > size(V)

U=mean(V);

return

end

U=zeros(1,length(V)-n+1);

for i = 1:length(U)

U(i)=mean(V(i:i+n-1));

end

function [a,V] = ant(n,k)

V=zeros(1,k);

for x = 1:k

count = 0;

i=(n+1)/2;

j=i;

while i>0 & i<=n & j>0 & j<=n

count = count+1;

numI = randint(1,1,[-1 1]);

i = i + numI;

numJ = randint(1,1,[-1 1]);

j = j + numJ;

end

V(x)=count;

end

a=mean(V);

end

%% Part C

8 1 6

3 5 7

4 9 2

magic(3)