#Q1)

>> A=[2 4 6 12;2 4 4 8;6 12 2 4;8 16 4 8]

A =

2 4 6 12

2 4 4 8

6 12 2 4

8 16 4 8

>> A

A =

2 4 6 12

2 4 4 8

6 12 2 4

8 16 4 8

>> A(2,:)=A(2,:)-A(1,:)

A =

2 4 6 12

0 0 -2 -4

6 12 2 4

8 16 4 8

>> A(3,:)=A(3,:)-3\*A(1,:)

A =

2 4 6 12

0 0 -2 -4

0 0 -16 -32

8 16 4 8

>> A(4,:)=A(4,:)-4\*A(1,:)

A =

2 4 6 12

0 0 -2 -4

0 0 -16 -32

0 0 -20 -40

>> A(3,:)=2\*A(3,:)-16\*A(2,:)

A =

2 4 6 12

0 0 -2 -4

0 0 0 0

0 0 -20 -40

>> A(4,:)=2\*A(4,:)-20\*A(2,:)

A =

2 4 6 12

0 0 -2 -4

0 0 0 0

0 0 0 0

>> A(2,:)/-2

ans =

-0 -0 1 2

>> A(1,:)/2

ans =

1 2 3 6

>> A

A =

2 4 6 12

0 0 -2 -4

0 0 0 0

0 0 0 0

>> A(2,:)=A(2,:)/-2

A =

2 4 6 12

-0 -0 1 2

0 0 0 0

0 0 0 0

>> A(1,:)=A(1,:)/2

A =

1 2 3 6

-0 -0 1 2

0 0 0 0

0 0 0 0

>> A

A =

1 2 3 6

-0 -0 1 2

0 0 0 0

0 0 0 0

>> B=[2 4 6 12;2 4 4 8;6 12 2 4;8 16 4 8]

B =

2 4 6 12

2 4 4 8

6 12 2 4

8 16 4 8

>> c=[B(:,1) B(:,3)]

c =

2 6

2 4

6 2

8 4

>> R=[A(1,:);A(2,:)]

R =

1 2 3 6

-0 -0 1 2

>> MP=R'\*inv(c'\*B\*R')\*c'

MP =

-0.0130435 -0.0060870 0.0165217 0.0173913

-0.0260870 -0.0121739 0.0330435 0.0347826

0.0282609 0.0165217 -0.0091304 -0.0043478

0.0565217 0.0330435 -0.0182609 -0.0086957

#Q2)

>> b=[10 3 4 1 7;2 11 -5 -3 3;3 -2 8 2 0;1 3 -4 9 8]

b =

10 3 4 1 7

2 11 -5 -3 3

3 -2 8 2 0

1 3 -4 9 8

rref(b)

ans =

Columns 1 through 4

1.0000 0 0 0

0 1.0000 0 0

0 0 1.0000 0

0 0 0 1.0000

Column 5

0.7741

0.1051

-0.4103

0.5855

#Q3)

> n=4

> a=1;b=5;h=1;k=1

> u=(3.5-a)/h

> v=(6.5-b)/k

> d=data.frame(p=c(6,7,8,9),q=c(9,24,10,12),r=c(12,18,38,15),s=c(4,30,41,32))

> d

p q r s

1 6 9 12 4

2 7 24 18 30

3 8 10 38 41

4 9 12 15 32

> d10=d[2,1]-d[1,1];d10

[1] 1

> 10

[1] 10

> d20=d[3,1]-2\*d[2,1]+d[1,1];d20

[1] 0

>

> d11=d[2,2]-d[2,1]-d[1,2]+d[1,1];d11

[1] 14

>

> d01=d[1,2]-d[1,1];d01

[1] 3

> d02=d[1,3]-2\*d[1,2]+d[1,1];d02

[1] 0

> f=d[1,1]+u\*d10+v\*d01+(u\*(u-1)d20)/2+(v(v-1)\*d02)/2+u\*v\*d11;f

[1] 65.5

Q4)

>u1=c(2,3,4);u2=c(3,5,2);u3=c(0,4,1)

> w1=u1

> ip1 = sum(w1\*u2)

> ip2 = sum(w1\*w1)

> ip1

[1] 29

> ip2

[1] 29

> w2=u2-((ip1/ip2)\*w1)

> ip3 = sum(u3\*w1)

> ip4 = sum(u3\*w2)

> ip5 = sum(w2\*w2)

> ip3

[1] 16

> ip4

[1] 6

> ip5

[1] 9

> w3=u3-((ip3/ip2)\*w1)-((ip4/ip5)\*w2)

> w11=sqrt(sum(w1\*w1))

> w21=sqrt(sum(w2\*w2))

> w31=sqrt(sum(w3\*w3))

> w11

[1] 5.385165

> w21

[1] 3

> w31

[1] 2.042649

> w2= w2/w21

> w3= w3/w31

> w1

[1] 2 3 4

> w2

[1] 0.3333333 0.6666667 -0.6666667

> w3

[1] -0.86657824 0.49518757 0.06189845

#Q5)

> x=c(1)

> y=c(2)

> d=0.001

> for(i in 2:40)

+ {

+ f=(4\*(x[i-1])^3)+5\*y[i-1]^3-42

+ g=(x[i-1]^3+(y[i-1]^3)-9)

+ fx=12\*x[i-1]^2

+ fy=15\*y[i-1]^2

+ gx=3\*x[i-1]^2

+ gy=3\*y[i-1]^2

+ dx=((gy\*f)-(fy\*g))/((fx\*gy)-(fy\*gx))

+ dy=((fx\*g)-(gx\*f))/((fx\*gy)-(fy\*gx))

+ x[i]=x[i-1]-dx

+ y[i]=y[i-1]-dy

+ if((abs(x[i-1]-x[i])<d)&&(abs(y[i-1]-y[i])<d))

+ {

+ break(0)

+ }

+ x=c(x,x[i])

+ y=c(y,y[i])

+

+ }

> a=data.frame(x,y);a

x y

1 1.000000 2.000000

2 1.666667 1.833333

3 1.471111 1.817264

4 1.442812 1.817121

5 1.442250 1.817121

#Q6)

> z=qnorm(0.023,0,1)

> z

[1] -1.995393

> b=36/(25\*(z\*z));b

[1] 0.3616642

> rho=sqrt(1-b)

> rho

[1] 0.7989592

#Q7)

>L1= 5

> L2=7;L2

[1] 7

> L3=8;L3

[1] 8

> X=1/(L2+L3);X

[1] 0.06666667

> CORR=L3/(L1+L2+L3);CORR

[1] 0.4

> CORR=L3/(L1+L2+L3);CORR

[1] 0.4

#Q8)

#if x1 follow chi sq with n1 degree and x2 follow chi sq n2 degree then (x1/n1)/(x2/n2)follows f with n1 and n2 degree

> #f follow f dist with 6 and 10 degree and non central parameter is 4

> pf(2.3,6,10,4)-pf(1.8,6,10,4)

[1] 0.1306236

#Q10)

>alpha1=0.10;alpha1

>r1=10;r1

>r2=8;r2

>fa=qf(alpha,r1,r2)

>fa

>alpha2=0.90;alpha2

>fb=qf(alpha2,r1,r2);fb

>an=pf(fb,r1,r2)-pf(fa,r1,r2);an

0.4206618

2.538037