UNIVERSITI SAINS MALAYSIA

First Semester Examination
2010/2011 Academic Session

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MSG 366 – Multivariate Analysis
[Analisis Multivariat]

Duration : 3 hours
[Masa : 3 jam]

Please check that this examination paper consists of FOURTY TWO pages of printed material before you begin the examination.

[Sila pastikan bahawa kertas peperiksaan ini mengandungi EMPAT PULUH DUA muka surat yang bercetak sebelum anda memulakan peperiksaan ini.]

Instructions: Answer **all ten** [10] questions.

*[**Arahan:** Jawab **semua sepuluh** [10] soalan.]*

In the event of any discrepancies, the English version shall be used.

[Sekiranya terdapat sebarang percanggahan pada soalan peperiksaan, versi Bahasa Inggeris hendaklah diguna pakai].

1. (a) Explain the three distances below:
   (i) Euclidean distance
   (ii) Statistical distance
   (iii) Mahalanobis distance.

[15 marks]

   (b) Write a paragraph on how you can detect the outliers.

[10 marks]

2. Let $\mathbf{X}$ be $N_4(\boldsymbol{\mu}, \boldsymbol{\Sigma})$ where

$$\mathbf{X} = \begin{bmatrix} X_1 \\ X_2 \\ X_3 \\ X_4 \end{bmatrix}, \ \boldsymbol{\mu} = \begin{bmatrix} 5 \\ 6 \\ 7 \\ 8 \end{bmatrix} \text{ and } \boldsymbol{\Sigma} = \begin{bmatrix} 2 & 0 & 1 & 0 \\ 0 & 3 & 2 & 0 \\ 1 & 2 & 4 & 0 \\ 0 & 0 & 0 & 9 \end{bmatrix}.$$

Find the distributions of

(a) $\begin{bmatrix} X_2 \\ X_4 \end{bmatrix}$.

(b) $X_1 - X_4$.

[20 marks]

3. Suppose $\mathbf{X}_1$ and $\mathbf{X}_2$ are independently distributed $N_p(\boldsymbol{\mu}, n_1^{-1}\boldsymbol{\Sigma})$ and $N_p(\boldsymbol{\mu}, n_2^{-1}\boldsymbol{\Sigma})$. Let

$$\mathbf{U} = \mathbf{X}_1 - \mathbf{X}_2 \text{ and } \mathbf{V} = n_1\mathbf{X}_1 + n_2\mathbf{X}_2 .$$

(a) State the distribution for each of the random vectors $\mathbf{U}$ and $\mathbf{V}$.

(b) Find the joint density of $\begin{pmatrix} \mathbf{U} \\ \mathbf{V} \end{pmatrix}$. Are they independent?

[25 marks]

1. (a) *Terangkan tiga jarak berikut:*
   (i) *jarak Euclidan.*
   (ii) *jarak berstatistik.*
   (iii) *jarak Mahalanobis.*

[15 markah]

(b) *Tuliskan suatu perenggan tentang bagaimana anda boleh menjejaki titik terpencil.*

[10 markah]

2. *Biar* $\mathbf{X}$ *sebagai* $N_4(\boldsymbol{\mu}, \boldsymbol{\Sigma})$ *yang mana*

$$\mathbf{X} = \begin{bmatrix} X_1 \\ X_2 \\ X_3 \\ X_4 \end{bmatrix}, \; \boldsymbol{\mu} = \begin{bmatrix} 5 \\ 6 \\ 7 \\ 8 \end{bmatrix} \; dan \; \boldsymbol{\Sigma} = \begin{bmatrix} 2 & 0 & 1 & 0 \\ 0 & 3 & 2 & 0 \\ 1 & 2 & 4 & 0 \\ 0 & 0 & 0 & 9 \end{bmatrix}.$$

Cari taburan bagi:

(a) $\begin{bmatrix} X_2 \\ X_4 \end{bmatrix}.$

(b) $X_1 - X_4$.

[20 markah]

3. *Katakan* $\mathbf{X}_1$ *dan* $\mathbf{X}_2$ *adalah secara tak bersandar tertabur* $N_p(\boldsymbol{\mu}, n_1^{-1}\boldsymbol{\Sigma})$ *dan* $N_p(\boldsymbol{\mu}, n_2^{-1}\boldsymbol{\Sigma})$. *Biar*

$$\mathbf{U} = \mathbf{X}_1 - \mathbf{X}_2 \quad dan \quad \mathbf{V} = n_1\mathbf{X}_1 + n_2\mathbf{X}_2 .$$

(a) *Nyatakan taburan bagi setiap vektor rawak* $\mathbf{U}$ *dan* $\mathbf{V}$.

(b) *Cari ketumpatan tercantum bagi* $\begin{pmatrix} \mathbf{U} \\ \mathbf{V} \end{pmatrix}$. *Adakah mereka tak bersandar?*

[25 markah]

4. (a) Given the data set for a random sample of size $n = 4$ from a bivariate normal population.

Group A	
$\mathbf{X}_1$	$\mathbf{X}_2$
1	2
3	5
4	9
5	9

With $s = \begin{bmatrix} 2.92 & \\ 5.58 & 11.58 \end{bmatrix}$ and its drivers $s = \begin{bmatrix} 4.44 & \\ -2.14 & 1.12 \end{bmatrix}$,

(i) Test $H_0 : \boldsymbol{\mu}' = [2, 7]$ at $\alpha = 0.05$. State your assumptions and give your conclusion.

(ii) Given the eigenvalues and eigenvectors of s as $\begin{bmatrix} 14.32 \\ 0.18 \end{bmatrix}$ and $\begin{bmatrix} 0.44 \\ 0.90 \end{bmatrix}, \begin{bmatrix} 0.90 \\ -0.44 \end{bmatrix}$ respectively, obtain 95% confidence region for the mean.

b) The second set of observations is collected from a different group. The data are shown below.

Group B	
$\mathbf{X}_1$	$\mathbf{X}_2$
5	11
7	15
8	17
10	20

(i) Combining the data from part (a), state the null and alternative hypothesis in words.

(ii) Build a one-way MANOVA table for this data, perform the analysis and draw your conclusion at $\alpha = 0.05$.

[40 marks]

5. The assembly of a driveshaft for an automobile requires the circle welding of tube yokes to a tube. The inputs to the automated welding machines must be controlled to be within certain operating limits where a machine produces welds of good quality. In order to control the process, one process engineer measured four critical variables:

$X_1 =$ Voltages (volts)

$X_2 =$ Current (amps)
$X_3 =$ Feed speed (in/min)
$X_4 =$ (inert) Gas flow (cfm)

Parts of the data (values of these variables at five-second intervals) and the output are shown in **OUTPUT A**. Obtain the 95% simultaneous T^2-interval, Bonferroni, individual and large sample intervals. Draw the intervals and compare the results.

[30 marks]

4. (a) *Diberi set data bagi suatu sampel rawak bersaiz $n = 4$ dari suatu populasi normal bivariat.*

Kumpulan A	
$\mathbf{X}_1$	$\mathbf{X}_2$
1	*2*
3	*5*
4	*9*
5	*9*

Uji $H_0 : \boldsymbol{\mu}' = [2, 7]$ pada $\alpha = 0.05$. Nyatakan andaian anda dan beri kesimpulan.

(b) *Set kedua cerapan dikutip dari kumpulan berbeza. Datanya adalah seperti ditunjukkan di bawah.*

Group B	
$\mathbf{X}_1$	$\mathbf{X}_2$
5	11
7	15
8	17
10	20

(i) *Dengan menggabungkan data dari bahagian (a), nyatakan hipotesis nul dan alternatif dalam perkataan.*

(ii) *Bina suatu jadual MANOVA satu-hala bagi data ini, jalankan analisis dan beri keimpulan anda pada $\alpha = 0.05$*

[40 markah]

5. *Pemasangan 'driveshaft' bagi suatu automobil memerlukan kimpalan bulatan igu tiub ke tiub. Input ke mesin kimpalan berautomat mesti dikawal supaya ia berada dalam lingkungan had operasi yang mana suatu mesin menghasilkan kimpalan berkualiti baik. Untuk mengawal proses, seorang jurutera proses mengukur empat pembolehubah kritikal:*

$X_1 =$ *Kekuatan letrik (volts)*
$X_2 =$ *Arus (amps)*
$X_3 =$ *Kelajuan suapan (in/min)*
$X_4 =$ *(rengsa) Aliran gas (cfm)*

Sebahagian daripada data (nilai pembolehubah ini pada selang lima-saat) dan output ditunjukkan dalam ***OUTPUT A****. Dapatkan selang serentak 95%* T^2*, Bonferroni, individu dan sampel besar. Lukis selang-selang ini dan bandingkan keputusannya.*

[30 markah]

6. Find a matrix $\mathbf{C}_2$ such that $\mathbf{C} = [\mathbf{C}_1 \,|\, \mathbf{C}_2]$ is an orthogonal matrix if

$$\mathbf{C}_1 = \begin{bmatrix} 1/\sqrt{3} & 1/\sqrt{2} \\ 1/\sqrt{3} & 0 \\ 1/\sqrt{3} & 1/\sqrt{2} \end{bmatrix}.$$

By the method g spectral decomposition, can we determine whether **C** is a positive definite matrix? Justify your answer.

[10 marks]

7. Glycine in the spinal cord of cats with local tetanus rigidity were noted: The left sides of the cats were considered a control and the right sides have local tetanus rigidity. The amount of glycine present in the gray and white matter was recorded. The data (in $\times 10^{-1}$) are given below.

	Gray matter		**White matter**	
	Control (L)	**Tetanus (R)**	**Control (L)**	**Tetanus (R)**
1	57	46	30	36
2	61	59	32	27
3	56	53	27	29
4	61	58	33	34
5	67	66	29	38
6	54	53	30	28
7	59	55	33	31
8	59	54	39	35
9	57	52	28	36
10	48	44	26	26
11	58	49	27	32

with the varianve-covariance matrix

$$\begin{bmatrix} 22.3 & 25.2 & 6.6 & 12.1 \\ 25.2 & 37.9 & 7.7 & 8.1 \\ 6.6 & 7.7 & 14.1 & 3.9 \\ 12.1 & 8.1 & 3.9 & 16.8 \end{bmatrix}$$

and its inverse

$$\begin{bmatrix} 0.39 & -0.22 & -0.02 & -0.171 \\ -0.22 & 0.15 & -0.00 & 0.08 \\ -0.02 & -0.00 & 0.08 & -0.00 \\ -0.17 & 0.08 & -0.00 & 0.14 \end{bmatrix}$$

(a) Is there a difference between control and tetanus for the two characteristics of gray and white matter?

(b) Explain on how you would perform the hypothesis testing to answer (a).

[30 marks]

6. *Cari suatu matrik* $\mathbf{C}_2$ *supaya* $\mathbf{C} = [\mathbf{C}_1 \,|\, \mathbf{C}_2]$ *adalah suatu matrik berortogon jika*

$$\mathbf{C}_1 = \begin{bmatrix} 1/3 & -1/2 \\ 1/3 & 0 \\ 1/3 & 1/2 \end{bmatrix}.$$

Adakah $\mathbf{C}$ *suatu matrik tentu positif ?*

[10 markah]

7. *Gelisin dalam tulang belakang kucing dengan ketegaran tetanus setempat dicatit: Sisi kiri kucing dikira sebagai kawala, dan sisi kanan dikira mempunyai ketegaran tetanus setempat. Amaun gelisin yang hadir dalam bahan kelabu dan putih direkod. Data (dalam* $\times 10^{-1}$ *) diberi di bawah.*

	Bahan kelabu		***Bahan putih***	
	Kawalan (L)	***Tetanus (R)***	***Kawalan (L)***	***Tetanus (R)***
1	*57*	*46*	*30*	*36*
2	*61*	*59*	*32*	*27*
3	*56*	*53*	*27*	*29*
4	*61*	*58*	*33*	*34*
5	*67*	*66*	*29*	*38*
6	*54*	*53*	*30*	*28*
7	*59*	*55*	*33*	*31*
8	*59*	*54*	*39*	*35*
9	*57*	*52*	*28*	*36*
10	*48*	*44*	*26*	*26*
11	*58*	*49*	*27*	*32*

dengan matriks varians-kovarias

$$\begin{bmatrix} 22.2909 & 25.1545 & 6.6364 & 12.1000 \\ 25.1545 & 37.8727 & 7.6818 & 8.1000 \\ 6.6364 & 7.6818 & 14.0545 & 3.9000 \\ 12.1000 & 8.1000 & 3.9000 & 16.8000 \end{bmatrix}$$

dan songsangannya

$$\begin{bmatrix} 0.390079 & -0.218986 & -0.016926 & -0.171438 \\ -0.218986 & 0.154775 & -0.004545 & 0.084153 \\ -0.016926 & -0.004545 & 0.082983 & -0.004881 \\ -0.171438 & 0.084153 & -0.004881 & 0.143559 \end{bmatrix}$$

(a) Adakah terdapat perbezaan antara kawalan dan tetanus bagi dua ciri bahan kelabu dan putih?

(b) Terangkan bagaimana anda akan jalankan pengujian hipotesis untuk menjawab (a).

[30 marks]

8. The data in the Table below and **OUTPUT B** give the clinical analysis of soil (nine characteristics) for three contours and four depths of soil. The area in question was divided into four blocks, and samples were taken randomly at depths of 0-10 cm, 10-30 cm and 30-60 cm for three contours of top, slope and depression. The characteristics of 5 to 8 were measured by milliequivalent $me/100g$. Variables and units are as follows:

$X_1 =$ pH
$X_2 =$ Total nitrogen (%)
$X_3 =$ Bulk density (gm/cm^3)
$X_4 =$ Total phosphorous (ppm)
$X_5 =$ Exchangeable + soluble calcium
$X_6 =$ Exchangeable + soluble magnesium
$X_7 =$ Exchangeable + soluble potassium
$X_8 =$ Exchangeable + soluble sodium
$X_9 =$ Conductivity ($mmhox/cm$ at 25^oC)

Table of Group Numbers in Relation to Depth and MIC Position

Microtopographic (MIC) Position	**Soil Layer (cm)**			
	0-10	10-30	30-60	60-90
Top: above 60 cm contour	1	2	3	4
Slope: between 30 and 60 cm contours	5	6	7	8
Depression: below 30 cm contour	9	10	11	12

(a) Interpret the results and give your conclusions.

(b) Can we test interaction effect? Justify your answer

[30 marks]

9. The data for the clinical analysis of soil (nine characteristics) in question 8 are referred. The output from the discriminant analysis is as in **OUTPUT C**. Interpret the results and give your conclusion.

[20 marks]

10. The SPSS factor analysis program was used to fit the factor models using the data for the clinical analysis of soil in question 8. The output is as in **OUTPUT D**.

(a) Interpret the results.

(b) Can we perform a cluster analysis on the data? Explain your answer

[20 marks]

8. Data dalam jadual di bawah dan ***OUTPUT B*** *memberi analisis klinikal tanah (sembilan ciri) bagi tiga kontor dan empat kedalaman tanah. Kawasan terbabit dibahagi kepada empat blok dan sampel diambil secara rawak pada kedalaman 0-10 sm, 10-30 sm dan 30-60 sm bagi tiga kontor atas, cerun dan lembah Ciri ke-5 hingga 8 diukur dengan milliequivalent $me/100g$. Pembolehubah dan unit adalah seperti berikut:*

$X_1 = pH$

$X_2 =$ *Jumlah nitrojen* $(\%)$

$X_3 =$ *Ketumpatan besar* (gm/cm^3)

$X_4 =$ *Jumlah posforus* (ppm)

$X_5 =$ *Boleh ditukar + kalsium terlarut*

$X_6 =$ *Boleh ditukar + magnesium terlarut*

$X_7 =$ *Boleh ditukar + potasium terlarut*

$X_8 =$ *Boleh ditukar + sodium terlarut*

$X_9 =$ *Konduktiviti* $(mmhox/cm$ *pada* $25^oC)$

Jadual Nombor Kumpulan berkait dengan kedalaman dan Kedudukan MIC

Kedudukan Microtopographic (MIC)	***Lapisan Tanah*** *(cm)*			
	0-10	*10-30*	*30-60*	*60-90*
Atas: kontor 60 cm ke atas	*1*	*2*	*3*	*4*
Cerun: kontor antara 30 and 60 cm	*5*	*6*	*7*	*8*
Lembah: kontor 30 cm ke bawah	*9*	*10*	*11*	*12*

Tafsirkan keputusan dan beri kesimpulan anda.

[30 markah]

9. *Data bagi analisis klinikal tanah (sembilan ciri) dalam soalan 8 dirujuk. Output dari analisis pembezalayan adalah seperti dalam **OUTPUT C**. Tafsirkan keputusan dan beri kesimpulan anda.*

[20 marks]

10. *Program analisis faktor SPSS telah diguna untuk menyuaikan model faktor menggunakan data bagi analisis tanah dalam soalan 8. Outputnya adalah seperti dalam **OUTPUT D**. Tafsirkan keputusan.*

[20 marks]

APPENDIX / LAMPIRAN

FORMULAE

The notations are as given in the lectures.

1. Suppose $\mathbf{X}$ has $E(\mathbf{X}) = \boldsymbol{\mu}$ and $\text{Cov}(\mathbf{X}) = \boldsymbol{\Sigma}$. Thus $\mathbf{c}'\mathbf{X}$ has mean, $\mathbf{c}'\boldsymbol{\mu}$, and variance, $\mathbf{c}'\boldsymbol{\Sigma}\mathbf{c}$.

2. Bivariate normal p.d.f:

$$f(x_1, x_2) = \frac{1}{2\pi\sqrt{\sigma_{11}\sigma_{22}(1-\rho_{12}^2)}} \times \exp\left\{-\frac{1}{2(1-\rho_{12}^2)}\left[\left(\frac{x_1-\mu_1}{\sqrt{\sigma_{11}}}\right)^2 + \left(\frac{x_2-\mu_2}{\sqrt{\sigma_{22}}}\right) - 2\rho_{12}\left(\frac{x_1-\mu_1}{\sqrt{\sigma_{11}}}\right)\left(\frac{x_2-\mu_2}{\sqrt{\sigma_{22}}}\right)\right]\right\}$$

3. Multivariate normal p.d.f:

$$f(\boldsymbol{x}) = \frac{1}{(2\pi)^{p/2}|\Sigma|^{1/2}} \mathbf{e}^{-(1/2)(\mathbf{x}-\boldsymbol{\mu})'\boldsymbol{\Sigma}^{-1}(\mathbf{x}-\boldsymbol{\mu})}$$

4. If $\mathbf{X} \sim N_p(\boldsymbol{\mu}, \boldsymbol{\Sigma})$, then

(a) $\mathbf{aX} \sim N(\mathbf{a}'\boldsymbol{\mu}, \mathbf{a}'\boldsymbol{\Sigma}\mathbf{a})$

(b) $\mathbf{AX} \sim N_q(\mathbf{A}\boldsymbol{\mu}, \mathbf{A}\boldsymbol{\Sigma}\mathbf{A}')$

(c) $\mathbf{X}+\mathbf{d} \sim N_p(\boldsymbol{\mu}+\mathbf{d}, \boldsymbol{\Sigma})$, $\mathbf{d}$ is a vector of constant

(d) $(\mathbf{X}-\boldsymbol{\mu})'\boldsymbol{\Sigma}^{-1}(\mathbf{X}-\boldsymbol{\mu}) \sim \chi^2_p$

5. Let $\mathbf{X}_j \sim N_p(\boldsymbol{\mu}_j, \boldsymbol{\Sigma})$, $j=1,\ldots,n$ be mutually independent. Then $\mathbf{V}_1 = \sum_{j=1}^{n} c_j \mathbf{X}_j \sim N_p\left(\sum_{j=1}^{n} c_i \boldsymbol{\mu}_j, \left(\sum_{j=1}^{n} c_j^2\right)\boldsymbol{\Sigma}\right)$. Moreover, $\mathbf{V}_1$ and $\mathbf{V}_2 = \sum_{j=1}^{n} b_j \mathbf{X}_j$ are jointly multivariate normal with covariance matrix

$$\begin{bmatrix} \left(\sum_{j=1}^{n} c_j^2\right)\boldsymbol{\Sigma} & (\mathbf{b}'\mathbf{c})\boldsymbol{\Sigma} \\ (\mathbf{b}'\mathbf{c})\boldsymbol{\Sigma} & \left(\sum_{j=1}^{n} b_j^2\right)\boldsymbol{\Sigma} \end{bmatrix}.$$

6. If $\mathbf{A}_1 \sim W_{m_1}(\mathbf{A}_1|\boldsymbol{\Sigma})$ independently of $\mathbf{A}_2$, which $\mathbf{A}_2 \sim W_{m_2}(\mathbf{A}_2|\boldsymbol{\Sigma})$, then $\mathbf{A}_1+\mathbf{A}_2 \sim W_{m_1+m_2}(\mathbf{A}_1+\mathbf{A}_2|\boldsymbol{\Sigma})$. Also, if $\mathbf{A} \sim W_m(\mathbf{A}|\boldsymbol{\Sigma})$, then

$$\mathbf{CAC}' \sim W_m(\mathbf{CAC}'|\mathbf{C}\boldsymbol{\Sigma}\mathbf{C}').$$

7. One-sample :

(a) $T^2 = n(\bar{\mathbf{X}}-\boldsymbol{\mu})'\mathbf{S}^{-1}(\bar{\mathbf{X}}-\boldsymbol{\mu})$

$$\bar{\mathbf{X}} = \frac{1}{n}\sum_{j=1}^{n}\mathbf{X}_j, \quad \mathbf{S} = \frac{1}{n-1}\sum_{j-1}^{n}(\mathbf{X}_j-\bar{\mathbf{X}})(\mathbf{X}_j-\bar{\mathbf{X}})'$$

$$T^2 \sim \frac{(n-1)p}{n-p}F_{p,n-p}$$

(b) $100\ \ 1-\alpha\ \ \%$ simultaneous confidence intervals for $\mathbf{a}'\boldsymbol{\mu}$:

$$\mathbf{a}'\,\bar{\mathbf{X}} \quad \pm \quad \sqrt{\frac{p\ \ n-1}{n\ \ n-p}F_{p.n-p}\ \ \alpha \quad \mathbf{a}'\mathbf{S}\,\mathbf{a}}$$

(c) $100\ \ 1-\alpha\ \ \%$ Bonferroni confidence interval for $\mu_i, \quad i=1,2,\ldots,p$:

$$\bar{x}_i \pm t_{n-1}\left(\frac{\alpha}{2p}\right)\sqrt{\frac{s_{ii}}{n}}$$

(d) $100\ \ 1-\alpha\ \ \%$ large sample confidence interval for $\mu_i : i=1,2,\ldots p$

$$\bar{x}_i \pm \sqrt{\chi_p^2\ \ \alpha}\ \sqrt{\frac{s_{ii}}{n}}$$

8. Paired comparisons

(a) $T^2 = n\ \ \bar{\mathbf{D}}-\boldsymbol{\delta}\ \ '\ \ \boldsymbol{\delta}_d^{-1}\ \ \bar{\mathbf{D}}-\boldsymbol{\delta}$

$$\bar{\mathbf{D}} = \frac{1}{n}\sum_{j=1}^{n}\mathbf{D}_j \qquad\qquad \mathbf{S}_d = \frac{1}{n-1}\sum_{j=1}^{n}\ \mathbf{D}_j-\bar{\mathbf{D}}\quad \mathbf{D}_j-\bar{\mathbf{D}}\ \ '$$

$$T^2 \sim \left[\frac{n-1\ \ p}{n-p}\right]F_{p,n-p}$$

(b) $100\ \ 1-\alpha\ \ \%$ simultaneous confidence interval for δ_i :

$$\bar{d}_i \pm \sqrt{\frac{n-1\ \ p}{n-p}F_{p,n-p\ \ \alpha}}\ \sqrt{\frac{s_{d_i}^2}{n}}$$

$\bar{d}_i = i^{th}$ element of $\bar{\mathbf{d}}$

$s_{d_i}^2 = i^{th}$ diagonal element of $\mathbf{S}_d$

9. Repeated Measure Design

(a) Let $\mathbf{C}$ be a contrast matrix

$$T^2 = n \ \mathbf{C}\,\bar{\mathbf{x}}' \quad \mathbf{CSC}' \ ^{-1}\,\mathbf{C}\bar{\mathbf{x}}$$

$$T^2 \sim \frac{n-1 \quad q-1}{n-q+1} F_{q-1,\ n-q+1} \quad \alpha$$

(b) $100 \quad 1-\alpha$ % simultaneous confidence intervals for $\mathbf{c}'\boldsymbol{\mu}$:

$$\mathbf{c}'\,\bar{\mathbf{x}} \pm \sqrt{\frac{n-1 \quad q-1}{n-q+1} F_{q-1,n-q+1} \quad \alpha} \ \sqrt{\frac{\mathbf{c}'\,\mathbf{Sc}}{n}}$$

10. Two independent samples:

(a)

$$T^2 = \left[\bar{\mathbf{X}}_\mathbf{1} - \bar{\mathbf{X}}_\mathbf{2} - \ \ \boldsymbol{\mu}_\mathbf{1} - \boldsymbol{\mu}_\mathbf{2}\ \ \right]' \left[\left(\frac{1}{n_1}+\frac{1}{n_2}\right)\mathbf{S}_p\right]^{-1} \left[\bar{\mathbf{X}}_\mathbf{1} - \bar{\mathbf{X}}_\mathbf{2} - \ \ \boldsymbol{\mu}_\mathbf{1} - \boldsymbol{\mu}_\mathbf{2}\ \ \right]$$

$$T^2 \sim \frac{n_1+n_2-2 \quad p}{n_1+n_2-p-1} F_{p,n_1+n_2-p-1}$$

$$\mathbf{S}_p = \frac{n_i-1}{n_i+n_2-2}\mathbf{S}_1 + \frac{n_2-1}{n_1+n_2-2}\mathbf{S}_2$$

$$\mathbf{S}_i = \frac{\sum_{j=1}^{n_i} \ \mathbf{x}_{ij} - \bar{\mathbf{x}}_i \quad \mathbf{x}_{ij} - \bar{\mathbf{x}}_i \ '}{n_i - 1}$$

(b) $100 \quad 1-\alpha$ % simultaneous confidence intervals for $\mathbf{a}' \ \ \boldsymbol{\mu}_\mathbf{1} - \boldsymbol{\mu}_\mathbf{2}$:

$$\mathbf{a}' \ \ \bar{\mathbf{X}}_\mathbf{1} - \bar{\mathbf{X}}_\mathbf{2} \quad \pm \ c\sqrt{\mathbf{a}'\left(\frac{1}{n_1}+\frac{1}{n_2}\right)\mathbf{S}_p\,\mathbf{a}}$$

where $c^2 = \dfrac{n_1+n_2-2 \quad p}{n_1+n_2-p-1} \quad F_{p,n_1+n_2-p-1} \quad \alpha$

(c) For large $n_1 - p,$ and $n_2 - p,$ $100 \quad 1-\alpha$ % simultaneous confidence interval for $\mathbf{a}' \ \ \boldsymbol{\mu}_\mathbf{1} - \boldsymbol{\mu}_\mathbf{2}$:

$$\mathbf{a}'(\bar{\mathbf{x}}_1 - \bar{\mathbf{x}}_2) \pm c\sqrt{\mathbf{a}'\left(\frac{1}{n_1}\mathbf{S}_1 + \frac{1}{n_2}\mathbf{S}_2\right)\mathbf{a}}$$

where $c^2 = \chi_p^2(\alpha)$

11. One-way MANOVA:

(a)

$$\mathbf{B} = \sum_{\ell=1}^{g} n_\ell (\bar{\mathbf{x}}_\ell - \bar{\mathbf{x}})(\bar{\mathbf{x}}_\ell - \bar{\mathbf{x}})'$$

$$\mathbf{W} = \sum_{\ell=1}^{g}\sum_{j=1}^{n_\ell} (\mathbf{x}_{\ell j} - \bar{\mathbf{x}}_\ell)(\mathbf{x}_{\ell j} - \bar{\mathbf{x}}_\ell)'$$

$$\Lambda^* = \frac{|\mathbf{W}|}{|\mathbf{B} + \mathbf{W}|}$$

(b) Bartlett: If $\sum n_\ell = n$ is large,

$$-\left(n - 1 - \frac{p+g}{2}\right)\ln \Lambda^* = -\left((n-1) - \frac{p+g}{2}\right)\ln\left(\frac{|\mathbf{W}|}{|\mathbf{B} + \mathbf{W}|}\right) \sim \chi^2_{p(g-1)}$$

(c) $100(1-\alpha)\%$ simultaneous confidence intervals for $\tau_{ki} - \tau_{\ell i}$:

$$\bar{x}_{ki} - \bar{x}_{\ell i} \pm t_{n-g}\left(\frac{\alpha}{pg(g-1)}\right)\sqrt{\frac{w_{ii}}{n-g}\left(\frac{1}{n_k} + \frac{1}{n_\ell}\right)}, \quad n = \sum_{\ell=1}^{g} n_\ell$$

$i = 1, 2, \ldots, p, \quad \ell < k = 1, 2, \ldots, g$

$w_{ii} = i^{th}$ diagonal element of $\mathbf{W}$.

OUTPUT A

Data Display

```
Row    X1   X2     X3    X4
  1  23.0  276  289.6  51.0
  2  22.0  281  289.0  51.7
  3  22.8  270  288.2  51.3
              :
              :
 38  22.7  272  289.0  52.0
 39  22.6  274  287.2  52.7
 40  22.7  270  290.0  51.0
```

Descriptive Statistics

	Mean	Std. Deviation	N
Voltage (X1)	22.338	.4470	40
Current (X2)	272.58	4.976	40
FeedSpeed (X3)	288.435	1.1100	40
GasFlow (X4)	51.960	.9448	40

Correlations

		Voltage	Current	FeedSpeed	GasFlow
Voltage	Pearson Correlation	1	-.013	.193	-.212
	Sum of Squares and Cross-products	7.794	-1.162	3.727	-3.490
	Covariance	.200	-.030	.096	-.089
	N	40	40	40	40
Current	Pearson Correlation	-.013	1	.090	.100
	Sum of Squares and Cross-products	-1.162	965.775	19.395	18.320
	Covariance	-.030	24.763	.497	.470
	N	40	40	40	40
FeedSpeed	Pearson Correlation	.193	.090	1	-.064
	Sum of Squares and Cross-products	3.727	19.395	48.051	-2.624
	Covariance	.096	.497	1.232	-.067
	N	40	40	40	40
GasFlow	Pearson Correlation	-.212	.100	-.064	1
	Sum of Squares and Cross-products	-3.490	18.320	-2.624	34.816

	Covariance	-.089	.470	-.067	.893
	N	40	40	40	40

OUTPUT B

Data Display

Row	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
1	1	1	5.40	0.188	0.92	215	16.35	7.65	0.72	1.14	1.09
2	2	1	5.65	0.165	1.04	208	12.25	5.15	0.71	0.94	1.35
3	3	1	5.14	0.260	0.95	300	13.02	5.68	0.68	0.60	1.41
4	4	1	5.14	0.169	1.10	248	11.92	7.88	1.09	1.01	1.64
5	1	2	5.14	0.164	1.12	174	14.17	8.12	0.70	2.17	1.85
6	2	2	5.10	0.094	1.22	129	8.55	6.92	0.81	2.67	3.18
7	3	2	4.70	0.100	1.52	117	8.74	8.16	0.39	3.32	4.16
8	4	2	4.46	0.112	1.47	170	9.49	9.16	0.70	3.76	5.14
						⋮					
						⋮					
40	4	10	5.35	0.095	1.26	195	8.59	8.66	0.48	4.17	3.65
41	1	11	3.94	0.054	1.60	148	4.85	9.62	0.18	7.20	10.14
42	2	11	4.52	0.051	1.53	115	6.34	9.78	0.34	8.52	9.74
43	3	11	4.35	0.032	1.55	82	5.99	9.73	0.22	7.02	8.60
44	4	11	4.64	0.065	1.46	152	4.43	10.54	0.22	7.61	9.09
45	1	12	3.82	0.038	1.40	105	4.65	9.85	0.18	10.15	12.26
46	2	12	4.24	0.035	1.47	100	4.56	8.95	0.33	10.51	11.29
47	3	12	4.22	0.030	1.56	97	5.29	8.37	0.14	8.27	9.51
48	4	12	4.41	0.058	1.58	130	4.58	9.46	0.14	9.28	12.69

Between-Subjects Factors

		N
Block	1	12
	2	12
	3	12
	4	12
Group	1	4
	2	4
	3	4
	4	4
	5	4
	6	4
	7	4
	8	4
	9	4
	10	4
	11	4
	12	4

Multivariate Tests

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.999	5131.643(a)	9.000	25.000	.000
	Wilks' Lambda	.001	5131.643(a)	9.000	25.000	.000
	Hotelling's Trace	1847.392	5131.643(a)	9.000	25.000	.000
	Roy's Largest Root	1847.392	5131.643(a)	9.000	25.000	.000
Block	Pillai's Trace	1.675	3.792	27.000	81.000	.000
	Wilks' Lambda	.080	3.762	27.000	73.655	.000
	Hotelling's Trace	4.180	3.664	27.000	71.000	.000
	Roy's Largest Root	2.220	6.661(b)	9.000	27.000	.000
Group	Pillai's Trace	3.527	1.933	99.000	297.000	.000
	Wilks' Lambda	.000	4.419	99.000	187.743	.000
	Hotelling's Trace	58.891	13.814	99.000	209.000	.000
	Roy's Largest Root	46.334	139.003(b)	11.000	33.000	.000

a Exact statistic
b The statistic is an upper bound on F that yields a lower bound on the significance level.
c Design: Intercept+Block+Group

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	X1	16.959(a)	14	1.211	9.423	.000
	X2	.176(b)	14	.013	11.573	.000
	X3	1.837(c)	14	.131	9.997	.000
	X4	253779.833(d)	14	18127.131	10.718	.000
	X5	426.864(e)	14	30.490	14.075	.000
	X6	60.231(f)	14	4.302	5.116	.000
	X7	1.948(g)	14	.139	11.217	.000
	X8	478.478(h)	14	34.177	37.670	.000
	X9	700.540(i)	14	50.039	35.320	.000
Intercept	X1	1046.454	1	1046.454	8139.865	.000
	X2	.499	1	.499	458.872	.000
	X3	83.108	1	83.108	6333.137	.000
	X4	1325345.333	1	1325345.333	783.654	.000
	X5	3094.762	1	3094.762	1428.646	.000
	X6	3439.160	1	3439.160	4089.487	.000
	X7	10.435	1	10.435	841.283	.000

	X8	1505.056	1	1505.056	1658.877	.000
	X9	2083.626	1	2083.626	1470.748	.000
Block	X1	1.228	3	.409	3.183	.037
	X2	.004	3	.001	1.173	.335
	X3	.111	3	.037	2.826	.054
	X4	6591.167	3	2197.056	1.299	.291
	X5	14.607	3	4.869	2.248	.101
	X6	13.878	3	4.626	5.501	.004
	X7	.323	3	.108	8.692	.000
	X8	15.401	3	5.134	5.658	.003
	X9	7.312	3	2.437	1.720	.182
Group	X1	15.731	11	1.430	11.124	.000
	X2	.172	11	.016	14.409	.000
	X3	1.725	11	.157	11.953	.000
	X4	247188.667	11	22471.697	13.287	.000
	X5	412.256	11	37.478	17.301	.000
	X6	46.353	11	4.214	5.011	.000
	X7	1.624	11	.148	11.906	.000
	X8	463.077	11	42.098	46.400	.000
	X9	693.229	11	63.021	44.484	.000
Error	X1	4.242	33	.129		
	X2	.036	33	.001		
	X3	.433	33	.013		
	X4	55810.833	33	1691.237		
	X5	71.485	33	2.166		
	X6	27.752	33	.841		
	X7	.409	33	.012		
	X8	29.940	33	.907		
	X9	46.752	33	1.417		
Total	X1	1067.655	48			
	X2	.711	48			
	X3	85.378	48			
	X4	1634936.000	48			
	X5	3593.111	48			
	X6	3527.143	48			
	X7	12.792	48			
	X8	2013.474	48			
	X9	2830.918	48			
Corrected Total	X1	21.202	47			
	X2	.212	47			
	X3	2.270	47			
	X4	309590.667	47			
	X5	498.349	47			
	X6	87.983	47			
	X7	2.357	47			
	X8	508.418	47			
	X9	747.292	47			

a R Squared = .800 (Adjusted R Squared = .715)
b R Squared = .831 (Adjusted R Squared = .759)
c R Squared = .809 (Adjusted R Squared = .728)
d R Squared = .820 (Adjusted R Squared = .743)
e R Squared = .857 (Adjusted R Squared = .796)
f R Squared = .685 (Adjusted R Squared = .551)
g R Squared = .826 (Adjusted R Squared = .753)
h R Squared = .941 (Adjusted R Squared = .916)
i R Squared = .937 (Adjusted R Squared = .911)

Between-Subjects SSCP Matrix

			X1	X2	X3	X4	X5	X6	X7	X8	X9
Hypothesis	Intercept	X1	1046.454	22.846	294.905	37241.273	1799.590	1897.082	104.496	1254.979	1476.624
		X2	22.846	.499	6.438	813.054	39.289	41.417	2.281	27.399	32.238
		X3	294.905	6.438	83.108	10495.087	507.148	534.623	29.448	353.670	416.132
		X4	37241.273	813.054	10495.087	1325345.333	64043.957	67513.517	3718.810	44662.277	52550.208
		X5	1799.590	39.289	507.148	64043.957	3094.762	3262.420	179.702	2158.191	2539.356
		X6	1897.082	41.417	534.623	67513.517	3262.420	3439.160	189.437	2275.111	2676.924
		X7	104.496	2.281	29.448	3718.810	179.702	189.437	10.435	125.319	147.452
		X8	1254.979	27.399	353.670	44662.277	2158.191	2275.111	125.319	1505.056	1770.868
		X9	1476.624	32.238	416.132	52550.208	2539.356	2676.924	147.452	1770.868	2083.626
	Block	X1	1.228	-.046	.271	-62.575	-.620	.249	.174	3.991	2.795
		X2	-.046	.004	-.020	4.440	.084	.039	.018	-.115	-.150
		X3	.271	-.020	.111	-25.350	-.565	-.313	-.085	.656	.829
		X4	-62.575	4.440	-25.350	6591.167	221.156	165.276	18.027	-118.659	-182.119
		X5	-.620	.084	-.565	221.156	14.607	13.896	.846	3.792	-2.274
		X6	.249	.039	-.313	165.276	13.896	13.878	.821	6.437	-.026
		X7	.174	.018	-.085	18.027	.846	.821	.323	1.073	-.121
		X8	3.991	-.115	.656	-118.659	3.792	6.437	1.073	15.401	8.489
		X9	2.795	-.150	.829	-182.119	-2.274	-.026	-.121	8.489	7.312
	Group	X1	15.731	1.446	-4.158	1695.924	74.400	-15.337	3.748	-78.957	-98.430
		X2	1.446	.172	-.517	182.212	8.040	-2.354	.457	-8.203	-10.012
		X3	-4.158	-.517	1.725	-597.174	-23.622	7.804	-1.440	24.604	29.930
		X4	1695.924	182.212	-597.174	247188.667	8200.803	-2334.852	438.765	-9231.449	-11306.193
		X5	74.400	8.040	-23.622	8200.803	412.256	-107.101	23.571	-419.406	-513.296
		X6	-15.337	-2.354	7.804	-2334.852	-107.101	46.353	-6.502	99.017	118.253
		X7	3.748	.457	-1.440	438.765	23.571	-6.502	1.624	-24.689	-29.983
		X8	-78.957	-8.203	24.604	-9231.449	-419.406	99.017	-24.689	463.077	564.504
		X9	-98.430	-10.012	29.930	-11306.193	-513.296	118.253	-29.983	564.504	693.229
Error		X1	4.242	-.049	-.200	-118.932	9.373	-2.014	.176	2.980	-.635
		X2	-.049	.036	-.062	29.103	.614	.063	.003	-.111	.045
		X3	-.200	-.062	.433	-42.783	-2.427	-.565	-.018	-.044	.647
		X4	-118.932	29.103	-42.783	55810.833	117.504	-382.411	17.937	-346.138	-97.316
		X5	9.373	.614	-2.427	117.504	71.485	3.709	.290	18.575	7.842
		X6	-2.014	.063	-.565	-382.411	3.709	27.752	.544	13.945	12.099
		X7	.176	.003	-.018	17.937	.290	.544	.409	-.382	-1.504
		X8	2.980	-.111	-.044	-346.138	18.575	13.945	-.382	29.940	26.390
		X9	-.635	.045	.647	-97.316	7.842	12.099	-1.504	26.390	46.752

Based on Type III Sum of Squares

Pairwise Comparisons

Dependent Variable	(I) Block	(J) Block	Mean Difference (I-J)	Std. Error	Sig.(a)	95% Confidence Interval for Difference(a)	
						Lower Bound	Upper Bound
X1	1	2	-.243	.146	.635	-.654	.168
		3	-.108	.146	1.000	-.519	.303
		4	-.428(*)	.146	.037	-.839	-.017
	2	1	.243	.146	.635	-.168	.654
		3	.135	.146	1.000	-.276	.546
		4	-.185	.146	1.000	-.596	.226
	3	1	.108	.146	1.000	-.303	.519
		2	-.135	.146	1.000	-.546	.276
		4	-.320	.146	.216	-.731	.091
	4	1	.428(*)	.146	.037	.017	.839
		2	.185	.146	1.000	-.226	.596
		3	.320	.146	.216	-.091	.731
X2	1	2	.008	.013	1.000	-.030	.046
		3	.019	.013	.962	-.018	.057
		4	.022	.013	.654	-.016	.060
	2	1	-.008	.013	1.000	-.046	.030
		3	.012	.013	1.000	-.026	.049
		4	.014	.013	1.000	-.023	.052
	3	1	-.019	.013	.962	-.057	.018
		2	-.012	.013	1.000	-.049	.026
		4	.003	.013	1.000	-.035	.041
	4	1	-.022	.013	.654	-.060	.016
		2	-.014	.013	1.000	-.052	.023
		3	-.003	.013	1.000	-.041	.035
X3	1	2	-.059	.047	1.000	-.190	.072
		3	-.107	.047	.175	-.238	.025
		4	-.124	.047	.073	-.255	.007
	2	1	.059	.047	1.000	-.072	.190
		3	-.048	.047	1.000	-.179	.084
		4	-.065	.047	1.000	-.196	.066
	3	1	.107	.047	.175	-.025	.238
		2	.048	.047	1.000	-.084	.179
		4	-.018	.047	1.000	-.149	.114
	4	1	.124	.047	.073	-.007	.255
		2	.065	.047	1.000	-.066	.196
		3	.018	.047	1.000	-.114	.149
X4	1	2	23.417	16.789	1.000	-23.706	70.540
		3	28.500	16.789	.594	-18.623	75.623
		4	28.083	16.789	.623	-19.040	75.206
	2	1	-23.417	16.789	1.000	-70.540	23.706

		3	5.083	16.789	1.000	-42.040	52.206
		4	4.667	16.789	1.000	-42.456	51.790
	3	1	-28.500	16.789	.594	-75.623	18.623
		2	-5.083	16.789	1.000	-52.206	42.040
		4	-.417	16.789	1.000	-47.540	46.706
	4	1	-28.083	16.789	.623	-75.206	19.040
		2	-4.667	16.789	1.000	-51.790	42.456
		3	.417	16.789	1.000	-46.706	47.540
X5	1	2	1.292	.601	.233	-.394	2.979
		3	1.251	.601	.271	-.436	2.937
		4	.418	.601	1.000	-1.268	2.105
	2	1	-1.292	.601	.233	-2.979	.394
		3	-.042	.601	1.000	-1.728	1.645
		4	-.874	.601	.931	-2.561	.812
	3	1	-1.251	.601	.271	-2.937	.436
		2	.042	.601	1.000	-1.645	1.728
		4	-.833	.601	1.000	-2.519	.854
	4	1	-.418	.601	1.000	-2.105	1.268
		2	.874	.601	.931	-.812	2.561
		3	.833	.601	1.000	-.854	2.519
X6	1	2	1.138(*)	.374	.028	.088	2.189
		3	1.087(*)	.374	.039	.037	2.138
		4	.079	.374	1.000	-.972	1.130
	2	1	-1.138(*)	.374	.028	-2.189	-.088
		3	-.051	.374	1.000	-1.102	1.000
		4	-1.059(*)	.374	.047	-2.110	-.008
	3	1	-1.087(*)	.374	.039	-2.138	-.037
		2	.051	.374	1.000	-1.000	1.102
		4	-1.008	.374	.066	-2.059	.042
	4	1	-.079	.374	1.000	-1.130	.972
		2	1.059(*)	.374	.047	.008	2.110
		3	1.008	.374	.066	-.042	2.059
X7	1	2	-.032	.045	1.000	-.159	.096
		3	.179(*)	.045	.002	.052	.307
		4	.011	.045	1.000	-.117	.138
	2	1	.032	.045	1.000	-.096	.159
		3	.211(*)	.045	.000	.083	.338
		4	.043	.045	1.000	-.085	.170
	3	1	-.179(*)	.045	.002	-.307	-.052
		2	-.211(*)	.045	.000	-.338	-.083
		4	-.168(*)	.045	.005	-.296	-.041
	4	1	-.011	.045	1.000	-.138	.117
		2	-.043	.045	1.000	-.170	.085
		3	.168(*)	.045	.005	.041	.296
X8	1	2	-.355	.389	1.000	-1.446	.736
		3	.196	.389	1.000	-.896	1.287
		4	-1.279(*)	.389	.014	-2.371	-.188
	2	1	.355	.389	1.000	-.736	1.446
		3	.551	.389	.996	-.541	1.642

		4	-.924	.389	.141	-2.016	.167
	3	1	-.196	.389	1.000	-1.287	.896
		2	-.551	.389	.996	-1.642	.541
		4	-1.475(*)	.389	.004	-2.566	-.384
	4	1	1.279(*)	.389	.014	.188	2.371
		2	.924	.389	.141	-.167	2.016
		3	1.475(*)	.389	.004	.384	2.566
X9	1	2	-.482	.486	1.000	-1.846	.882
		3	-.545	.486	1.000	-1.909	.819
		4	-1.101	.486	.181	-2.465	.263
	2	1	.482	.486	1.000	-.882	1.846
		3	-.063	.486	1.000	-1.427	1.301
		4	-.619	.486	1.000	-1.983	.745
	3	1	.545	.486	1.000	-.819	1.909
		2	.063	.486	1.000	-1.301	1.427
		4	-.556	.486	1.000	-1.920	.808
	4	1	1.101	.486	.181	-.263	2.465
		2	.619	.486	1.000	-.745	1.983
		3	.556	.486	1.000	-.808	1.920

Based on estimated marginal means
* The mean difference is significant at the .05 level.
a Adjustment for multiple comparisons: Bonferroni.

Pairwise Comparisons

Dependent Variable	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.(a)	95% Confidence Interval for Difference(a)	
						Lower Bound	Upper Bound
X1	1	2	.483	.254	1.000	-.458	1.423
		3	1.128(*)	.254	.006	.187	2.068
		4	1.440(*)	.254	.000	.499	2.381
		5	-.175	.254	1.000	-1.116	.766
		6	.050	.254	1.000	-.891	.991
		7	1.065(*)	.254	.013	.124	2.006
		8	1.405(*)	.254	.000	.464	2.346
		9	-.020	.254	1.000	-.961	.921
		10	.455	.254	1.000	-.486	1.396
		11	.970(*)	.254	.036	.029	1.911
		12	1.160(*)	.254	.004	.219	2.101
	2	1	-.483	.254	1.000	-1.423	.458
		3	.645	.254	1.000	-.296	1.586
		4	.957(*)	.254	.042	.017	1.898
		5	-.658	.254	.928	-1.598	.283
		6	-.433	.254	1.000	-1.373	.508
		7	.582	.254	1.000	-.358	1.523
		8	.923	.254	.061	-.018	1.863
		9	-.503	.254	1.000	-1.443	.438

	10	-.027	.254	1.000	-.968	.913
	11	.488	.254	1.000	-.453	1.428
	12	.678	.254	.767	-.263	1.618
3	1	-1.128(*)	.254	.006	-2.068	-.187
	2	-.645	.254	1.000	-1.586	.296
	4	.313	.254	1.000	-.628	1.253
	5	-1.303(*)	.254	.001	-2.243	-.362
	6	-1.078(*)	.254	.011	-2.018	-.137
	7	-.063	.254	1.000	-1.003	.878
	8	.278	.254	1.000	-.663	1.218
	9	-1.148(*)	.254	.005	-2.088	-.207
	10	-.672	.254	.804	-1.613	.268
	11	-.157	.254	1.000	-1.098	.783
	12	.033	.254	1.000	-.908	.973
4	1	-1.440(*)	.254	.000	-2.381	-.499
	2	-.957(*)	.254	.042	-1.898	-.017
	3	-.313	.254	1.000	-1.253	.628
	5	-1.615(*)	.254	.000	-2.556	-.674
	6	-1.390(*)	.254	.000	-2.331	-.449
	7	-.375	.254	1.000	-1.316	.566
	8	-.035	.254	1.000	-.976	.906
	9	-1.460(*)	.254	.000	-2.401	-.519
	10	-.985(*)	.254	.031	-1.926	-.044
	11	-.470	.254	1.000	-1.411	.471
	12	-.280	.254	1.000	-1.221	.661
5	1	.175	.254	1.000	-.766	1.116
	2	.658	.254	.928	-.283	1.598
	3	1.303(*)	.254	.001	.362	2.243
	4	1.615(*)	.254	.000	.674	2.556
	6	.225	.254	1.000	-.716	1.166
	7	1.240(*)	.254	.002	.299	2.181
	8	1.580(*)	.254	.000	.639	2.521
	9	.155	.254	1.000	-.786	1.096
	10	.630	.254	1.000	-.311	1.571
	11	1.145(*)	.254	.005	.204	2.086
	12	1.335(*)	.254	.001	.394	2.276
6	1	-.050	.254	1.000	-.991	.891
	2	.433	.254	1.000	-.508	1.373
	3	1.078(*)	.254	.011	.137	2.018
	4	1.390(*)	.254	.000	.449	2.331
	5	-.225	.254	1.000	-1.166	.716
	7	1.015(*)	.254	.022	.074	1.956
	8	1.355(*)	.254	.000	.414	2.296
	9	-.070	.254	1.000	-1.011	.871
	10	.405	.254	1.000	-.536	1.346
	11	.920	.254	.063	-.021	1.861
	12	1.110(*)	.254	.008	.169	2.051
7	1	-1.065(*)	.254	.013	-2.006	-.124

	2	-.582	.254	1.000	-1.523	.358
	3	.063	.254	1.000	-.878	1.003
	4	.375	.254	1.000	-.566	1.316
	5	-1.240(*)	.254	.002	-2.181	-.299
	6	-1.015(*)	.254	.022	-1.956	-.074
	8	.340	.254	1.000	-.601	1.281
	9	-1.085(*)	.254	.010	-2.026	-.144
	10	-.610	.254	1.000	-1.551	.331
	11	-.095	.254	1.000	-1.036	.846
	12	.095	.254	1.000	-.846	1.036
8	1	-1.405(*)	.254	.000	-2.346	-.464
	2	-.923	.254	.061	-1.863	.018
	3	-.278	.254	1.000	-1.218	.663
	4	.035	.254	1.000	-.906	.976
	5	-1.580(*)	.254	.000	-2.521	-.639
	6	-1.355(*)	.254	.000	-2.296	-.414
	7	-.340	.254	1.000	-1.281	.601
	9	-1.425(*)	.254	.000	-2.366	-.484
	10	-.950(*)	.254	.045	-1.891	-.009
	11	-.435	.254	1.000	-1.376	.506
	12	-.245	.254	1.000	-1.186	.696
9	1	.020	.254	1.000	-.921	.961
	2	.503	.254	1.000	-.438	1.443
	3	1.148(*)	.254	.005	.207	2.088
	4	1.460(*)	.254	.000	.519	2.401
	5	-.155	.254	1.000	-1.096	.786
	6	.070	.254	1.000	-.871	1.011
	7	1.085(*)	.254	.010	.144	2.026
	8	1.425(*)	.254	.000	.484	2.366
	10	.475	.254	1.000	-.466	1.416
	11	.990(*)	.254	.029	.049	1.931
	12	1.180(*)	.254	.003	.239	2.121
10	1	-.455	.254	1.000	-1.396	.486
	2	.027	.254	1.000	-.913	.968
	3	.672	.254	.804	-.268	1.613
	4	.985(*)	.254	.031	.044	1.926
	5	-.630	.254	1.000	-1.571	.311
	6	-.405	.254	1.000	-1.346	.536
	7	.610	.254	1.000	-.331	1.551
	8	.950(*)	.254	.045	.009	1.891
	9	-.475	.254	1.000	-1.416	.466
	11	.515	.254	1.000	-.426	1.456
	12	.705	.254	.587	-.236	1.646
11	1	-.970(*)	.254	.036	-1.911	-.029
	2	-.488	.254	1.000	-1.428	.453
	3	.157	.254	1.000	-.783	1.098
	4	.470	.254	1.000	-.471	1.411
	5	-1.145(*)	.254	.005	-2.086	-.204

		6	-.920	.254	.063	-1.861	.021
		7	.095	.254	1.000	-.846	1.036
		8	.435	.254	1.000	-.506	1.376
		9	-.990(*)	.254	.029	-1.931	-.049
		10	-.515	.254	1.000	-1.456	.426
		12	.190	.254	1.000	-.751	1.131
	12	1	-1.160(*)	.254	.004	-2.101	-.219
		2	-.678	.254	.767	-1.618	.263
		3	-.033	.254	1.000	-.973	.908
		4	.280	.254	1.000	-.661	1.221
		5	-1.335(*)	.254	.001	-2.276	-.394
		6	-1.110(*)	.254	.008	-2.051	-.169
		7	-.095	.254	1.000	-1.036	.846
		8	.245	.254	1.000	-.696	1.186
		9	-1.180(*)	.254	.003	-2.121	-.239
		10	-.705	.254	.587	-1.646	.236
		11	-.190	.254	1.000	-1.131	.751
X2	1	2	.078	.023	.136	-.009	.165
		3	.116(*)	.023	.001	.029	.203
		4	.138(*)	.023	.000	.051	.224
		5	-.023	.023	1.000	-.110	.063
		6	.095(*)	.023	.019	.008	.181
		7	.135(*)	.023	.000	.048	.221
		8	.153(*)	.023	.000	.066	.239
		9	.017	.023	1.000	-.069	.104
		10	.115(*)	.023	.001	.029	.202
		11	.145(*)	.023	.000	.058	.232
		12	.155(*)	.023	.000	.069	.242
	2	1	-.078	.023	.136	-.165	.009
		3	.038	.023	1.000	-.049	.125
		4	.060	.023	.998	-.027	.146
		5	-.101(*)	.023	.008	-.188	-.015
		6	.017	.023	1.000	-.070	.103
		7	.057	.023	1.000	-.030	.143
		8	.075	.023	.202	-.012	.161
		9	-.061	.023	.901	-.147	.026
		10	.037	.023	1.000	-.049	.124
		11	.067	.023	.465	-.020	.154
		12	.077	.023	.148	-.009	.164
	3	1	-.116(*)	.023	.001	-.203	-.029
		2	-.038	.023	1.000	-.125	.049
		4	.022	.023	1.000	-.065	.108
		5	-.139(*)	.023	.000	-.226	-.053
		6	-.022	.023	1.000	-.108	.065
		7	.019	.023	1.000	-.068	.105
		8	.037	.023	1.000	-.050	.123
		9	-.099(*)	.023	.011	-.185	-.012
		10	-.001	.023	1.000	-.087	.086

	11	.029	.023	1.000	-.058	.116
	12	.039	.023	1.000	-.047	.126
4	1	-.138(*)	.023	.000	-.224	-.051
	2	-.060	.023	.998	-.146	.027
	3	-.022	.023	1.000	-.108	.065
	5	-.161(*)	.023	.000	-.248	-.075
	6	-.043	.023	1.000	-.130	.043
	7	-.003	.023	1.000	-.090	.084
	8	.015	.023	1.000	-.072	.101
	9	-.121(*)	.023	.001	-.207	-.034
	10	-.023	.023	1.000	-.109	.064
	11	.007	.023	1.000	-.079	.094
	12	.017	.023	1.000	-.069	.104
5	1	.023	.023	1.000	-.063	.110
	2	.101(*)	.023	.008	.015	.188
	3	.139(*)	.023	.000	.053	.226
	4	.161(*)	.023	.000	.075	.248
	6	.118(*)	.023	.001	.031	.205
	7	.158(*)	.023	.000	.072	.245
	8	.176(*)	.023	.000	.089	.263
	9	.041	.023	1.000	-.046	.127
	10	.139(*)	.023	.000	.052	.225
	11	.168(*)	.023	.000	.082	.255
	12	.179(*)	.023	.000	.092	.265
6	1	-.095(*)	.023	.019	-.181	-.008
	2	-.017	.023	1.000	-.103	.070
	3	.022	.023	1.000	-.065	.108
	4	.043	.023	1.000	-.043	.130
	5	-.118(*)	.023	.001	-.205	-.031
	7	.040	.023	1.000	-.046	.127
	8	.058	.023	1.000	-.029	.145
	9	-.077	.023	.148	-.164	.009
	10	.021	.023	1.000	-.066	.107
	11	.051	.023	1.000	-.036	.137
	12	.061	.023	.901	-.026	.147
7	1	-.135(*)	.023	.000	-.221	-.048
	2	-.057	.023	1.000	-.143	.030
	3	-.019	.023	1.000	-.105	.068
	4	.003	.023	1.000	-.084	.090
	5	-.158(*)	.023	.000	-.245	-.072
	6	-.040	.023	1.000	-.127	.046
	8	.018	.023	1.000	-.069	.104
	9	-.118(*)	.023	.001	-.204	-.031
	10	-.019	.023	1.000	-.106	.067
	11	.010	.023	1.000	-.076	.097
	12	.020	.023	1.000	-.066	.107
8	1	-.153(*)	.023	.000	-.239	-.066
	2	-.075	.023	.202	-.161	.012

	3	-.037	.023	1.000	-.123	.050
	4	-.015	.023	1.000	-.101	.072
	5	-.176(*)	.023	.000	-.263	-.089
	6	-.058	.023	1.000	-.145	.029
	7	-.018	.023	1.000	-.104	.069
	9	-.135(*)	.023	.000	-.222	-.049
	10	-.037	.023	1.000	-.124	.049
	11	-.008	.023	1.000	-.094	.079
	12	.003	.023	1.000	-.084	.089
9	1	-.017	.023	1.000	-.104	.069
	2	.061	.023	.901	-.026	.147
	3	.099(*)	.023	.011	.012	.185
	4	.121(*)	.023	.001	.034	.207
	5	-.041	.023	1.000	-.127	.046
	6	.077	.023	.148	-.009	.164
	7	.118(*)	.023	.001	.031	.204
	8	.135(*)	.023	.000	.049	.222
	10	.098(*)	.023	.012	.011	.185
	11	.128(*)	.023	.000	.041	.214
	12	.138(*)	.023	.000	.051	.225
10	1	-.115(*)	.023	.001	-.202	-.029
	2	-.037	.023	1.000	-.124	.049
	3	.001	.023	1.000	-.086	.087
	4	.023	.023	1.000	-.064	.109
	5	-.139(*)	.023	.000	-.225	-.052
	6	-.021	.023	1.000	-.107	.066
	7	.019	.023	1.000	-.067	.106
	8	.037	.023	1.000	-.049	.124
	9	-.098(*)	.023	.012	-.185	-.011
	11	.030	.023	1.000	-.057	.116
	12	.040	.023	1.000	-.047	.127
11	1	-.145(*)	.023	.000	-.232	-.058
	2	-.067	.023	.465	-.154	.020
	3	-.029	.023	1.000	-.116	.058
	4	-.007	.023	1.000	-.094	.079
	5	-.168(*)	.023	.000	-.255	-.082
	6	-.051	.023	1.000	-.137	.036
	7	-.010	.023	1.000	-.097	.076
	8	.008	.023	1.000	-.079	.094
	9	-.128(*)	.023	.000	-.214	-.041
	10	-.030	.023	1.000	-.116	.057
	12	.010	.023	1.000	-.076	.097
12	1	-.155(*)	.023	.000	-.242	-.069
	2	-.077	.023	.148	-.164	.009
	3	-.039	.023	1.000	-.126	.047
	4	-.017	.023	1.000	-.104	.069
	5	-.179(*)	.023	.000	-.265	-.092
	6	-.061	.023	.901	-.147	.026

		7	-.020	.023	1.000	-.107	.066
		8	-.003	.023	1.000	-.089	.084
		9	-.138(*)	.023	.000	-.225	-.051
		10	-.040	.023	1.000	-.127	.047
		11	-.010	.023	1.000	-.097	.076
X3	1	2	-.330(*)	.081	.018	-.631	-.029
		3	-.320(*)	.081	.026	-.621	-.019
		4	-.428(*)	.081	.001	-.728	-.127
		5	-.048	.081	1.000	-.348	.253
		6	-.345(*)	.081	.011	-.646	-.044
		7	-.508(*)	.081	.000	-.808	-.207
		8	-.420(*)	.081	.001	-.721	-.119
		9	.025	.081	1.000	-.276	.326
		10	-.355(*)	.081	.007	-.656	-.054
		11	-.533(*)	.081	.000	-.833	-.232
		12	-.500(*)	.081	.000	-.801	-.199
	2	1	.330(*)	.081	.018	.029	.631
		3	.010	.081	1.000	-.291	.311
		4	-.098	.081	1.000	-.398	.203
		5	.283	.081	.093	-.018	.583
		6	-.015	.081	1.000	-.316	.286
		7	-.178	.081	1.000	-.478	.123
		8	-.090	.081	1.000	-.391	.211
		9	.355(*)	.081	.007	.054	.656
		10	-.025	.081	1.000	-.326	.276
		11	-.202	.081	1.000	-.503	.098
		12	-.170	.081	1.000	-.471	.131
	3	1	.320(*)	.081	.026	.019	.621
		2	-.010	.081	1.000	-.311	.291
		4	-.108	.081	1.000	-.408	.193
		5	.273	.081	.129	-.028	.573
		6	-.025	.081	1.000	-.326	.276
		7	-.188	.081	1.000	-.488	.113
		8	-.100	.081	1.000	-.401	.201
		9	.345(*)	.081	.011	.044	.646
		10	-.035	.081	1.000	-.336	.266
		11	-.212	.081	.863	-.513	.088
		12	-.180	.081	1.000	-.481	.121
	4	1	.428(*)	.081	.001	.127	.728
		2	.098	.081	1.000	-.203	.398
		3	.108	.081	1.000	-.193	.408
		5	.380(*)	.081	.003	.079	.681
		6	.083	.081	1.000	-.218	.383
		7	-.080	.081	1.000	-.381	.221
		8	.008	.081	1.000	-.293	.308
		9	.453(*)	.081	.000	.152	.753
		10	.073	.081	1.000	-.228	.373
		11	-.105	.081	1.000	-.406	.196

	12	-.073	.081	1.000	-.373	.228
5	1	.048	.081	1.000	-.253	.348
	2	-.283	.081	.093	-.583	.018
	3	-.273	.081	.129	-.573	.028
	4	-.380(*)	.081	.003	-.681	-.079
	6	-.297	.081	.056	-.598	.003
	7	-.460(*)	.081	.000	-.761	-.159
	8	-.372(*)	.081	.004	-.673	-.072
	9	.073	.081	1.000	-.228	.373
	10	-.308(*)	.081	.039	-.608	-.007
	11	-.485(*)	.081	.000	-.786	-.184
	12	-.453(*)	.081	.000	-.753	-.152
6	1	.345(*)	.081	.011	.044	.646
	2	.015	.081	1.000	-.286	.316
	3	.025	.081	1.000	-.276	.326
	4	-.083	.081	1.000	-.383	.218
	5	.297	.081	.056	-.003	.598
	7	-.163	.081	1.000	-.463	.138
	8	-.075	.081	1.000	-.376	.226
	9	.370(*)	.081	.004	.069	.671
	10	-.010	.081	1.000	-.311	.291
	11	-.188	.081	1.000	-.488	.113
	12	-.155	.081	1.000	-.456	.146
7	1	.508(*)	.081	.000	.207	.808
	2	.178	.081	1.000	-.123	.478
	3	.188	.081	1.000	-.113	.488
	4	.080	.081	1.000	-.221	.381
	5	.460(*)	.081	.000	.159	.761
	6	.163	.081	1.000	-.138	.463
	8	.088	.081	1.000	-.213	.388
	9	.533(*)	.081	.000	.232	.833
	10	.153	.081	1.000	-.148	.453
	11	-.025	.081	1.000	-.326	.276
	12	.007	.081	1.000	-.293	.308
8	1	.420(*)	.081	.001	.119	.721
	2	.090	.081	1.000	-.211	.391
	3	.100	.081	1.000	-.201	.401
	4	-.008	.081	1.000	-.308	.293
	5	.372(*)	.081	.004	.072	.673
	6	.075	.081	1.000	-.226	.376
	7	-.088	.081	1.000	-.388	.213
	9	.445(*)	.081	.000	.144	.746
	10	.065	.081	1.000	-.236	.366
	11	-.113	.081	1.000	-.413	.188
	12	-.080	.081	1.000	-.381	.221
9	1	-.025	.081	1.000	-.326	.276
	2	-.355(*)	.081	.007	-.656	-.054
	3	-.345(*)	.081	.011	-.646	-.044

		4	-.453(*)	.081	.000	-.753	-.152
		5	-.073	.081	1.000	-.373	.228
		6	-.370(*)	.081	.004	-.671	-.069
		7	-.533(*)	.081	.000	-.833	-.232
		8	-.445(*)	.081	.000	-.746	-.144
		10	-.380(*)	.081	.003	-.681	-.079
		11	-.558(*)	.081	.000	-.858	-.257
		12	-.525(*)	.081	.000	-.826	-.224
	10	1	.355(*)	.081	.007	.054	.656
		2	.025	.081	1.000	-.276	.326
		3	.035	.081	1.000	-.266	.336
		4	-.073	.081	1.000	-.373	.228
		5	.308(*)	.081	.039	.007	.608
		6	.010	.081	1.000	-.291	.311
		7	-.153	.081	1.000	-.453	.148
		8	-.065	.081	1.000	-.366	.236
		9	.380(*)	.081	.003	.079	.681
		11	-.178	.081	1.000	-.478	.123
		12	-.145	.081	1.000	-.446	.156
	11	1	.533(*)	.081	.000	.232	.833
		2	.202	.081	1.000	-.098	.503
		3	.212	.081	.863	-.088	.513
		4	.105	.081	1.000	-.196	.406
		5	.485(*)	.081	.000	.184	.786
		6	.188	.081	1.000	-.113	.488
		7	.025	.081	1.000	-.276	.326
		8	.113	.081	1.000	-.188	.413
		9	.558(*)	.081	.000	.257	.858
		10	.178	.081	1.000	-.123	.478
		12	.032	.081	1.000	-.268	.333
	12	1	.500(*)	.081	.000	.199	.801
		2	.170	.081	1.000	-.131	.471
		3	.180	.081	1.000	-.121	.481
		4	.073	.081	1.000	-.228	.373
		5	.453(*)	.081	.000	.152	.753
		6	.155	.081	1.000	-.146	.456
		7	-.007	.081	1.000	-.308	.293
		8	.080	.081	1.000	-.221	.381
		9	.525(*)	.081	.000	.224	.826
		10	.145	.081	1.000	-.156	.446
		11	-.032	.081	1.000	-.333	.268
X4	1	2	95.250	29.080	.164	-12.670	203.170
		3	126.500(*)	29.080	.008	18.580	234.420
		4	145.750(*)	29.080	.001	37.830	253.670
		5	-15.250	29.080	1.000	-123.170	92.670
		6	82.500	29.080	.510	-25.420	190.420
		7	128.250(*)	29.080	.007	20.330	236.170
		8	137.750(*)	29.080	.003	29.830	245.670

	9	-90.250	29.080	.258	-198.170	17.670
	10	55.250	29.080	1.000	-52.670	163.170
	11	118.500(*)	29.080	.018	10.580	226.420
	12	134.750(*)	29.080	.004	26.830	242.670
2	1	-95.250	29.080	.164	-203.170	12.670
	3	31.250	29.080	1.000	-76.670	139.170
	4	50.500	29.080	1.000	-57.420	158.420
	5	-110.500(*)	29.080	.039	-218.420	-2.580
	6	-12.750	29.080	1.000	-120.670	95.170
	7	33.000	29.080	1.000	-74.920	140.920
	8	42.500	29.080	1.000	-65.420	150.420
	9	-185.500(*)	29.080	.000	-293.420	-77.580
	10	-40.000	29.080	1.000	-147.920	67.920
	11	23.250	29.080	1.000	-84.670	131.170
	12	39.500	29.080	1.000	-68.420	147.420
3	1	-126.500(*)	29.080	.008	-234.420	-18.580
	2	-31.250	29.080	1.000	-139.170	76.670
	4	19.250	29.080	1.000	-88.670	127.170
	5	-141.750(*)	29.080	.002	-249.670	-33.830
	6	-44.000	29.080	1.000	-151.920	63.920
	7	1.750	29.080	1.000	-106.170	109.670
	8	11.250	29.080	1.000	-96.670	119.170
	9	-216.750(*)	29.080	.000	-324.670	-108.830
	10	-71.250	29.080	1.000	-179.170	36.670
	11	-8.000	29.080	1.000	-115.920	99.920
	12	8.250	29.080	1.000	-99.670	116.170
4	1	-145.750(*)	29.080	.001	-253.670	-37.830
	2	-50.500	29.080	1.000	-158.420	57.420
	3	-19.250	29.080	1.000	-127.170	88.670
	5	-161.000(*)	29.080	.000	-268.920	-53.080
	6	-63.250	29.080	1.000	-171.170	44.670
	7	-17.500	29.080	1.000	-125.420	90.420
	8	-8.000	29.080	1.000	-115.920	99.920
	9	-236.000(*)	29.080	.000	-343.920	-128.080
	10	-90.500	29.080	.252	-198.420	17.420
	11	-27.250	29.080	1.000	-135.170	80.670
	12	-11.000	29.080	1.000	-118.920	96.920
5	1	15.250	29.080	1.000	-92.670	123.170
	2	110.500(*)	29.080	.039	2.580	218.420
	3	141.750(*)	29.080	.002	33.830	249.670
	4	161.000(*)	29.080	.000	53.080	268.920
	6	97.750	29.080	.130	-10.170	205.670
	7	143.500(*)	29.080	.001	35.580	251.420
	8	153.000(*)	29.080	.001	45.080	260.920
	9	-75.000	29.080	.960	-182.920	32.920
	10	70.500	29.080	1.000	-37.420	178.420
	11	133.750(*)	29.080	.004	25.830	241.670
	12	150.000(*)	29.080	.001	42.080	257.920

6	1	-82.500	29.080	.510	-190.420	25.420
	2	12.750	29.080	1.000	-95.170	120.670
	3	44.000	29.080	1.000	-63.920	151.920
	4	63.250	29.080	1.000	-44.670	171.170
	5	-97.750	29.080	.130	-205.670	10.170
	7	45.750	29.080	1.000	-62.170	153.670
	8	55.250	29.080	1.000	-52.670	163.170
	9	-172.750(*)	29.080	.000	-280.670	-64.830
	10	-27.250	29.080	1.000	-135.170	80.670
	11	36.000	29.080	1.000	-71.920	143.920
	12	52.250	29.080	1.000	-55.670	160.170
7	1	-128.250(*)	29.080	.007	-236.170	-20.330
	2	-33.000	29.080	1.000	-140.920	74.920
	3	-1.750	29.080	1.000	-109.670	106.170
	4	17.500	29.080	1.000	-90.420	125.420
	5	-143.500(*)	29.080	.001	-251.420	-35.580
	6	-45.750	29.080	1.000	-153.670	62.170
	8	9.500	29.080	1.000	-98.420	117.420
	9	-218.500(*)	29.080	.000	-326.420	-110.580
	10	-73.000	29.080	1.000	-180.920	34.920
	11	-9.750	29.080	1.000	-117.670	98.170
	12	6.500	29.080	1.000	-101.420	114.420
8	1	-137.750(*)	29.080	.003	-245.670	-29.830
	2	-42.500	29.080	1.000	-150.420	65.420
	3	-11.250	29.080	1.000	-119.170	96.670
	4	8.000	29.080	1.000	-99.920	115.920
	5	-153.000(*)	29.080	.001	-260.920	-45.080
	6	-55.250	29.080	1.000	-163.170	52.670
	7	-9.500	29.080	1.000	-117.420	98.420
	9	-228.000(*)	29.080	.000	-335.920	-120.080
	10	-82.500	29.080	.510	-190.420	25.420
	11	-19.250	29.080	1.000	-127.170	88.670
	12	-3.000	29.080	1.000	-110.920	104.920
9	1	90.250	29.080	.258	-17.670	198.170
	2	185.500(*)	29.080	.000	77.580	293.420
	3	216.750(*)	29.080	.000	108.830	324.670
	4	236.000(*)	29.080	.000	128.080	343.920
	5	75.000	29.080	.960	-32.920	182.920
	6	172.750(*)	29.080	.000	64.830	280.670
	7	218.500(*)	29.080	.000	110.580	326.420
	8	228.000(*)	29.080	.000	120.080	335.920
	10	145.500(*)	29.080	.001	37.580	253.420
	11	208.750(*)	29.080	.000	100.830	316.670
	12	225.000(*)	29.080	.000	117.080	332.920
10	1	-55.250	29.080	1.000	-163.170	52.670
	2	40.000	29.080	1.000	-67.920	147.920
	3	71.250	29.080	1.000	-36.670	179.170
	4	90.500	29.080	.252	-17.420	198.420

		5	-70.500	29.080	1.000	-178.420	37.420
		6	27.250	29.080	1.000	-80.670	135.170
		7	73.000	29.080	1.000	-34.920	180.920
		8	82.500	29.080	.510	-25.420	190.420
		9	-145.500(*)	29.080	.001	-253.420	-37.580
		11	63.250	29.080	1.000	-44.670	171.170
		12	79.500	29.080	.659	-28.420	187.420
	11	1	-118.500(*)	29.080	.018	-226.420	-10.580
		2	-23.250	29.080	1.000	-131.170	84.670
		3	8.000	29.080	1.000	-99.920	115.920
		4	27.250	29.080	1.000	-80.670	135.170
		5	-133.750(*)	29.080	.004	-241.670	-25.830
		6	-36.000	29.080	1.000	-143.920	71.920
		7	9.750	29.080	1.000	-98.170	117.670
		8	19.250	29.080	1.000	-88.670	127.170
		9	-208.750(*)	29.080	.000	-316.670	-100.830
		10	-63.250	29.080	1.000	-171.170	44.670
		12	16.250	29.080	1.000	-91.670	124.170
	12	1	-134.750(*)	29.080	.004	-242.670	-26.830
		2	-39.500	29.080	1.000	-147.420	68.420
		3	-8.250	29.080	1.000	-116.170	99.670
		4	11.000	29.080	1.000	-96.920	118.920
		5	-150.000(*)	29.080	.001	-257.920	-42.080
		6	-52.250	29.080	1.000	-160.170	55.670
		7	-6.500	29.080	1.000	-114.420	101.420
		8	3.000	29.080	1.000	-104.920	110.920
		9	-225.000(*)	29.080	.000	-332.920	-117.080
		10	-79.500	29.080	.659	-187.420	28.420
		11	-16.250	29.080	1.000	-124.170	91.670
X5	1	2	3.148	1.041	.317	-.715	7.010
		3	6.765(*)	1.041	.000	2.903	10.627
		4	8.118(*)	1.041	.000	4.255	11.980
		5	1.138	1.041	1.000	-2.725	5.000
		6	3.868(*)	1.041	.049	.005	7.730
		7	7.508(*)	1.041	.000	3.645	11.370
		8	8.588(*)	1.041	.000	4.725	12.450
		9	2.700	1.041	.926	-1.162	6.562
		10	5.838(*)	1.041	.000	1.975	9.700
		11	7.983(*)	1.041	.000	4.120	11.845
		12	8.615(*)	1.041	.000	4.753	12.477
	2	1	-3.148	1.041	.317	-7.010	.715
		3	3.618	1.041	.096	-.245	7.480
		4	4.970(*)	1.041	.002	1.108	8.832
		5	-2.010	1.041	1.000	-5.872	1.852
		6	.720	1.041	1.000	-3.142	4.582
		7	4.360(*)	1.041	.013	.498	8.222
		8	5.440(*)	1.041	.001	1.578	9.302
		9	-.447	1.041	1.000	-4.310	3.415

	10	2.690	1.041	.947	-1.172	6.552
	11	4.835(*)	1.041	.003	.973	8.697
	12	5.468(*)	1.041	.001	1.605	9.330
3	1	-6.765(*)	1.041	.000	-10.627	-2.903
	2	-3.618	1.041	.096	-7.480	.245
	4	1.352	1.041	1.000	-2.510	5.215
	5	-5.627(*)	1.041	.000	-9.490	-1.765
	6	-2.897	1.041	.582	-6.760	.965
	7	.743	1.041	1.000	-3.120	4.605
	8	1.823	1.041	1.000	-2.040	5.685
	9	-4.065(*)	1.041	.029	-7.927	-.203
	10	-.928	1.041	1.000	-4.790	2.935
	11	1.218	1.041	1.000	-2.645	5.080
	12	1.850	1.041	1.000	-2.012	5.712
4	1	-8.118(*)	1.041	.000	-11.980	-4.255
	2	-4.970(*)	1.041	.002	-8.832	-1.108
	3	-1.352	1.041	1.000	-5.215	2.510
	5	-6.980(*)	1.041	.000	-10.842	-3.118
	6	-4.250(*)	1.041	.017	-8.112	-.388
	7	-.610	1.041	1.000	-4.472	3.252
	8	.470	1.041	1.000	-3.392	4.332
	9	-5.417(*)	1.041	.001	-9.280	-1.555
	10	-2.280	1.041	1.000	-6.142	1.582
	11	-.135	1.041	1.000	-3.997	3.727
	12	.498	1.041	1.000	-3.365	4.360
5	1	-1.138	1.041	1.000	-5.000	2.725
	2	2.010	1.041	1.000	-1.852	5.872
	3	5.627(*)	1.041	.000	1.765	9.490
	4	6.980(*)	1.041	.000	3.118	10.842
	6	2.730	1.041	.864	-1.132	6.592
	7	6.370(*)	1.041	.000	2.508	10.232
	8	7.450(*)	1.041	.000	3.588	11.312
	9	1.563	1.041	1.000	-2.300	5.425
	10	4.700(*)	1.041	.005	.838	8.562
	11	6.845(*)	1.041	.000	2.983	10.707
	12	7.478(*)	1.041	.000	3.615	11.340
6	1	-3.868(*)	1.041	.049	-7.730	-.005
	2	-.720	1.041	1.000	-4.582	3.142
	3	2.897	1.041	.582	-.965	6.760
	4	4.250(*)	1.041	.017	.388	8.112
	5	-2.730	1.041	.864	-6.592	1.132
	7	3.640	1.041	.090	-.222	7.502
	8	4.720(*)	1.041	.005	.858	8.582
	9	-1.168	1.041	1.000	-5.030	2.695
	10	1.970	1.041	1.000	-1.892	5.832
	11	4.115(*)	1.041	.025	.253	7.977
	12	4.748(*)	1.041	.004	.885	8.610
7	1	-7.508(*)	1.041	.000	-11.370	-3.645

	2	-4.360(*)	1.041	.013	-8.222	-.498
	3	-.743	1.041	1.000	-4.605	3.120
	4	.610	1.041	1.000	-3.252	4.472
	5	-6.370(*)	1.041	.000	-10.232	-2.508
	6	-3.640	1.041	.090	-7.502	.222
	8	1.080	1.041	1.000	-2.782	4.942
	9	-4.808(*)	1.041	.004	-8.670	-.945
	10	-1.670	1.041	1.000	-5.532	2.192
	11	.475	1.041	1.000	-3.387	4.337
	12	1.108	1.041	1.000	-2.755	4.970
8	1	-8.588(*)	1.041	.000	-12.450	-4.725
	2	-5.440(*)	1.041	.001	-9.302	-1.578
	3	-1.823	1.041	1.000	-5.685	2.040
	4	-.470	1.041	1.000	-4.332	3.392
	5	-7.450(*)	1.041	.000	-11.312	-3.588
	6	-4.720(*)	1.041	.005	-8.582	-.858
	7	-1.080	1.041	1.000	-4.942	2.782
	9	-5.888(*)	1.041	.000	-9.750	-2.025
	10	-2.750	1.041	.824	-6.612	1.112
	11	-.605	1.041	1.000	-4.467	3.257
	12	.028	1.041	1.000	-3.835	3.890
9	1	-2.700	1.041	.926	-6.562	1.162
	2	.447	1.041	1.000	-3.415	4.310
	3	4.065(*)	1.041	.029	.203	7.927
	4	5.417(*)	1.041	.001	1.555	9.280
	5	-1.563	1.041	1.000	-5.425	2.300
	6	1.168	1.041	1.000	-2.695	5.030
	7	4.808(*)	1.041	.004	.945	8.670
	8	5.888(*)	1.041	.000	2.025	9.750
	10	3.137	1.041	.325	-.725	7.000
	11	5.283(*)	1.041	.001	1.420	9.145
	12	5.915(*)	1.041	.000	2.053	9.777
10	1	-5.838(*)	1.041	.000	-9.700	-1.975
	2	-2.690	1.041	.947	-6.552	1.172
	3	.928	1.041	1.000	-2.935	4.790
	4	2.280	1.041	1.000	-1.582	6.142
	5	-4.700(*)	1.041	.005	-8.562	-.838
	6	-1.970	1.041	1.000	-5.832	1.892
	7	1.670	1.041	1.000	-2.192	5.532
	8	2.750	1.041	.824	-1.112	6.612
	9	-3.137	1.041	.325	-7.000	.725
	11	2.145	1.041	1.000	-1.717	6.007
	12	2.778	1.041	.773	-1.085	6.640
11	1	-7.983(*)	1.041	.000	-11.845	-4.120
	2	-4.835(*)	1.041	.003	-8.697	-.973
	3	-1.218	1.041	1.000	-5.080	2.645
	4	.135	1.041	1.000	-3.727	3.997
	5	-6.845(*)	1.041	.000	-10.707	-2.983

		6	-4.115(*)	1.041	.025	-7.977	-.253
		7	-.475	1.041	1.000	-4.337	3.387
		8	.605	1.041	1.000	-3.257	4.467
		9	-5.283(*)	1.041	.001	-9.145	-1.420
		10	-2.145	1.041	1.000	-6.007	1.717
		12	.633	1.041	1.000	-3.230	4.495
	12	1	-8.615(*)	1.041	.000	-12.477	-4.753
		2	-5.468(*)	1.041	.001	-9.330	-1.605
		3	-1.850	1.041	1.000	-5.712	2.012
		4	-.498	1.041	1.000	-4.360	3.365
		5	-7.478(*)	1.041	.000	-11.340	-3.615
		6	-4.748(*)	1.041	.004	-8.610	-.885
		7	-1.108	1.041	1.000	-4.970	2.755
		8	-.028	1.041	1.000	-3.890	3.835
		9	-5.915(*)	1.041	.000	-9.777	-2.053
		10	-2.778	1.041	.773	-6.640	1.085
		11	-.633	1.041	1.000	-4.495	3.230
X6	1	2	-1.500	.648	1.000	-3.907	.907
		3	-2.153	.648	.146	-4.559	.254
		4	-2.338	.648	.067	-4.744	.069
		5	-.643	.648	1.000	-3.049	1.764
		6	-2.390	.648	.054	-4.797	.017
		7	-2.378	.648	.057	-4.784	.029
		8	-1.510	.648	1.000	-3.917	.897
		9	-.645	.648	1.000	-3.052	1.762
		10	-3.045(*)	.648	.003	-5.452	-.638
		11	-3.328(*)	.648	.001	-5.734	-.921
		12	-2.567(*)	.648	.025	-4.974	-.161
	2	1	1.500	.648	1.000	-.907	3.907
		3	-.653	.648	1.000	-3.059	1.754
		4	-.838	.648	1.000	-3.244	1.569
		5	.857	.648	1.000	-1.549	3.264
		6	-.890	.648	1.000	-3.297	1.517
		7	-.878	.648	1.000	-3.284	1.529
		8	-.010	.648	1.000	-2.417	2.397
		9	.855	.648	1.000	-1.552	3.262
		10	-1.545	.648	1.000	-3.952	.862
		11	-1.828	.648	.534	-4.234	.579
		12	-1.067	.648	1.000	-3.474	1.339
	3	1	2.153	.648	.146	-.254	4.559
		2	.653	.648	1.000	-1.754	3.059
		4	-.185	.648	1.000	-2.592	2.222
		5	1.510	.648	1.000	-.897	3.917
		6	-.238	.648	1.000	-2.644	2.169
		7	-.225	.648	1.000	-2.632	2.182
		8	.643	.648	1.000	-1.764	3.049
		9	1.508	.648	1.000	-.899	3.914
		10	-.892	.648	1.000	-3.299	1.514

	11	-1.175	.648	1.000	-3.582	1.232
	12	-.415	.648	1.000	-2.822	1.992
4	1	2.338	.648	.067	-.069	4.744
	2	.838	.648	1.000	-1.569	3.244
	3	.185	.648	1.000	-2.222	2.592
	5	1.695	.648	.883	-.712	4.102
	6	-.053	.648	1.000	-2.459	2.354
	7	-.040	.648	1.000	-2.447	2.367
	8	.828	.648	1.000	-1.579	3.234
	9	1.693	.648	.891	-.714	4.099
	10	-.707	.648	1.000	-3.114	1.699
	11	-.990	.648	1.000	-3.397	1.417
	12	-.230	.648	1.000	-2.637	2.177
5	1	.643	.648	1.000	-1.764	3.049
	2	-.857	.648	1.000	-3.264	1.549
	3	-1.510	.648	1.000	-3.917	.897
	4	-1.695	.648	.883	-4.102	.712
	6	-1.747	.648	.725	-4.154	.659
	7	-1.735	.648	.760	-4.142	.672
	8	-.867	.648	1.000	-3.274	1.539
	9	-.002	.648	1.000	-2.409	2.404
	10	-2.402	.648	.051	-4.809	.004
	11	-2.685(*)	.648	.015	-5.092	-.278
	12	-1.925	.648	.365	-4.332	.482
6	1	2.390	.648	.054	-.017	4.797
	2	.890	.648	1.000	-1.517	3.297
	3	.238	.648	1.000	-2.169	2.644
	4	.053	.648	1.000	-2.354	2.459
	5	1.747	.648	.725	-.659	4.154
	7	.012	.648	1.000	-2.394	2.419
	8	.880	.648	1.000	-1.527	3.287
	9	1.745	.648	.732	-.662	4.152
	10	-.655	.648	1.000	-3.062	1.752
	11	-.937	.648	1.000	-3.344	1.469
	12	-.177	.648	1.000	-2.584	2.229
7	1	2.378	.648	.057	-.029	4.784
	2	.878	.648	1.000	-1.529	3.284
	3	.225	.648	1.000	-2.182	2.632
	4	.040	.648	1.000	-2.367	2.447
	5	1.735	.648	.760	-.672	4.142
	6	-.012	.648	1.000	-2.419	2.394
	8	.868	.648	1.000	-1.539	3.274
	9	1.733	.648	.768	-.674	4.139
	10	-.667	.648	1.000	-3.074	1.739
	11	-.950	.648	1.000	-3.357	1.457
	12	-.190	.648	1.000	-2.597	2.217
8	1	1.510	.648	1.000	-.897	3.917
	2	.010	.648	1.000	-2.397	2.417

	3	-.643	.648	1.000	-3.049	1.764
	4	-.828	.648	1.000	-3.234	1.579
	5	.867	.648	1.000	-1.539	3.274
	6	-.880	.648	1.000	-3.287	1.527
	7	-.868	.648	1.000	-3.274	1.539
	9	.865	.648	1.000	-1.542	3.272
	10	-1.535	.648	1.000	-3.942	.872
	11	-1.818	.648	.555	-4.224	.589
	12	-1.057	.648	1.000	-3.464	1.349
9	1	.645	.648	1.000	-1.762	3.052
	2	-.855	.648	1.000	-3.262	1.552
	3	-1.508	.648	1.000	-3.914	.899
	4	-1.693	.648	.891	-4.099	.714
	5	.002	.648	1.000	-2.404	2.409
	6	-1.745	.648	.732	-4.152	.662
	7	-1.733	.648	.768	-4.139	.674
	8	-.865	.648	1.000	-3.272	1.542
	10	-2.400	.648	.051	-4.807	.007
	11	-2.683(*)	.648	.015	-5.089	-.276
	12	-1.922	.648	.369	-4.329	.484
10	1	3.045(*)	.648	.003	.638	5.452
	2	1.545	.648	1.000	-.862	3.952
	3	.892	.648	1.000	-1.514	3.299
	4	.707	.648	1.000	-1.699	3.114
	5	2.402	.648	.051	-.004	4.809
	6	.655	.648	1.000	-1.752	3.062
	7	.667	.648	1.000	-1.739	3.074
	8	1.535	.648	1.000	-.872	3.942
	9	2.400	.648	.051	-.007	4.807
	11	-.283	.648	1.000	-2.689	2.124
	12	.478	.648	1.000	-1.929	2.884
11	1	3.328(*)	.648	.001	.921	5.734
	2	1.828	.648	.534	-.579	4.234
	3	1.175	.648	1.000	-1.232	3.582
	4	.990	.648	1.000	-1.417	3.397
	5	2.685(*)	.648	.015	.278	5.092
	6	.937	.648	1.000	-1.469	3.344
	7	.950	.648	1.000	-1.457	3.357
	8	1.818	.648	.555	-.589	4.224
	9	2.683(*)	.648	.015	.276	5.089
	10	.283	.648	1.000	-2.124	2.689
	12	.760	.648	1.000	-1.647	3.167
12	1	2.567(*)	.648	.025	.161	4.974
	2	1.067	.648	1.000	-1.339	3.474
	3	.415	.648	1.000	-1.992	2.822
	4	.230	.648	1.000	-2.177	2.637
	5	1.925	.648	.365	-.482	4.332
	6	.177	.648	1.000	-2.229	2.584

		7	.190	.648	1.000	-2.217	2.597
		8	1.057	.648	1.000	-1.349	3.464
		9	1.922	.648	.369	-.484	4.329
		10	-.478	.648	1.000	-2.884	1.929
		11	-.760	.648	1.000	-3.167	1.647
X7	1	2	.150	.079	1.000	-.142	.442
		3	.255	.079	.181	-.037	.547
		4	.375(*)	.079	.002	.083	.667
		5	.165	.079	1.000	-.127	.457
		6	.320(*)	.079	.019	.028	.612
		7	.500(*)	.079	.000	.208	.792
		8	.553(*)	.079	.000	.260	.845
		9	.175	.079	1.000	-.117	.467
		10	.350(*)	.079	.006	.058	.642
		11	.560(*)	.079	.000	.268	.852
		12	.603(*)	.079	.000	.310	.895
	2	1	-.150	.079	1.000	-.442	.142
		3	.105	.079	1.000	-.187	.397
		4	.225	.079	.485	-.067	.517
		5	.015	.079	1.000	-.277	.307
		6	.170	.079	1.000	-.122	.462
		7	.350(*)	.079	.006	.058	.642
		8	.402(*)	.079	.001	.110	.695
		9	.025	.079	1.000	-.267	.317
		10	.200	.079	1.000	-.092	.492
		11	.410(*)	.079	.001	.118	.702
		12	.453(*)	.079	.000	.160	.745
	3	1	-.255	.079	.181	-.547	.037
		2	-.105	.079	1.000	-.397	.187
		4	.120	.079	1.000	-.172	.412
		5	-.090	.079	1.000	-.382	.202
		6	.065	.079	1.000	-.227	.357
		7	.245	.079	.253	-.047	.537
		8	.298(*)	.079	.042	.005	.590
		9	-.080	.079	1.000	-.372	.212
		10	.095	.079	1.000	-.197	.387
		11	.305(*)	.079	.032	.013	.597
		12	.348(*)	.079	.007	.055	.640
	4	1	-.375(*)	.079	.002	-.667	-.083
		2	-.225	.079	.485	-.517	.067
		3	-.120	.079	1.000	-.412	.172
		5	-.210	.079	.777	-.502	.082
		6	-.055	.079	1.000	-.347	.237
		7	.125	.079	1.000	-.167	.417
		8	.178	.079	1.000	-.115	.470
		9	-.200	.079	1.000	-.492	.092
		10	-.025	.079	1.000	-.317	.267
		11	.185	.079	1.000	-.107	.477

	12	.228	.079	.447	-.065	.520
5	1	-.165	.079	1.000	-.457	.127
	2	-.015	.079	1.000	-.307	.277
	3	.090	.079	1.000	-.202	.382
	4	.210	.079	.777	-.082	.502
	6	.155	.079	1.000	-.137	.447
	7	.335(*)	.079	.011	.043	.627
	8	.387(*)	.079	.002	.095	.680
	9	.010	.079	1.000	-.282	.302
	10	.185	.079	1.000	-.107	.477
	11	.395(*)	.079	.001	.103	.687
	12	.438(*)	.079	.000	.145	.730
6	1	-.320(*)	.079	.019	-.612	-.028
	2	-.170	.079	1.000	-.462	.122
	3	-.065	.079	1.000	-.357	.227
	4	.055	.079	1.000	-.237	.347
	5	-.155	.079	1.000	-.447	.137
	7	.180	.079	1.000	-.112	.472
	8	.232	.079	.381	-.060	.525
	9	-.145	.079	1.000	-.437	.147
	10	.030	.079	1.000	-.262	.322
	11	.240	.079	.298	-.052	.532
	12	.283	.079	.070	-.010	.575
7	1	-.500(*)	.079	.000	-.792	-.208
	2	-.350(*)	.079	.006	-.642	-.058
	3	-.245	.079	.253	-.537	.047
	4	-.125	.079	1.000	-.417	.167
	5	-.335(*)	.079	.011	-.627	-.043
	6	-.180	.079	1.000	-.472	.112
	8	.053	.079	1.000	-.240	.345
	9	-.325(*)	.079	.015	-.617	-.033
	10	-.150	.079	1.000	-.442	.142
	11	.060	.079	1.000	-.232	.352
	12	.103	.079	1.000	-.190	.395
8	1	-.553(*)	.079	.000	-.845	-.260
	2	-.402(*)	.079	.001	-.695	-.110
	3	-.298(*)	.079	.042	-.590	-.005
	4	-.178	.079	1.000	-.470	.115
	5	-.387(*)	.079	.002	-.680	-.095
	6	-.232	.079	.381	-.525	.060
	7	-.053	.079	1.000	-.345	.240
	9	-.378(*)	.079	.002	-.670	-.085
	10	-.202	.079	.978	-.495	.090
	11	.008	.079	1.000	-.285	.300
	12	.050	.079	1.000	-.242	.342
9	1	-.175	.079	1.000	-.467	.117
	2	-.025	.079	1.000	-.317	.267
	3	.080	.079	1.000	-.212	.372

		4	.200	.079	1.000	-.092	.492
		5	-.010	.079	1.000	-.302	.282
		6	.145	.079	1.000	-.147	.437
		7	.325(*)	.079	.015	.033	.617
		8	.378(*)	.079	.002	.085	.670
		10	.175	.079	1.000	-.117	.467
		11	.385(*)	.079	.002	.093	.677
		12	.428(*)	.079	.000	.135	.720
	10	1	-.350(*)	.079	.006	-.642	-.058
		2	-.200	.079	1.000	-.492	.092
		3	-.095	.079	1.000	-.387	.197
		4	.025	.079	1.000	-.267	.317
		5	-.185	.079	1.000	-.477	.107
		6	-.030	.079	1.000	-.322	.262
		7	.150	.079	1.000	-.142	.442
		8	.202	.079	.978	-.090	.495
		9	-.175	.079	1.000	-.467	.117
		11	.210	.079	.777	-.082	.502
		12	.253	.079	.197	-.040	.545
	11	1	-.560(*)	.079	.000	-.852	-.268
		2	-.410(*)	.079	.001	-.702	-.118
		3	-.305(*)	.079	.032	-.597	-.013
		4	-.185	.079	1.000	-.477	.107
		5	-.395(*)	.079	.001	-.687	-.103
		6	-.240	.079	.298	-.532	.052
		7	-.060	.079	1.000	-.352	.232
		8	-.008	.079	1.000	-.300	.285
		9	-.385(*)	.079	.002	-.677	-.093
		10	-.210	.079	.777	-.502	.082
		12	.043	.079	1.000	-.250	.335
	12	1	-.603(*)	.079	.000	-.895	-.310
		2	-.453(*)	.079	.000	-.745	-.160
		3	-.348(*)	.079	.007	-.640	-.055
		4	-.228	.079	.447	-.520	.065
		5	-.438(*)	.079	.000	-.730	-.145
		6	-.283	.079	.070	-.575	.010
		7	-.103	.079	1.000	-.395	.190
		8	-.050	.079	1.000	-.342	.242
		9	-.428(*)	.079	.000	-.720	-.135
		10	-.253	.079	.197	-.545	.040
		11	-.043	.079	1.000	-.335	.250
X8	1	2	-2.057	.674	.293	-4.557	.442
		3	-5.375(*)	.674	.000	-7.875	-2.875
		4	-8.367(*)	.674	.000	-10.867	-5.868
		5	-1.068	.674	1.000	-3.567	1.432
		6	-4.013(*)	.674	.000	-6.512	-1.513
		7	-6.708(*)	.674	.000	-9.207	-4.208
		8	-8.935(*)	.674	.000	-11.435	-6.435

	9	-.590	.674	1.000	-3.090	1.910
	10	-3.718(*)	.674	.000	-6.217	-1.218
	11	-6.665(*)	.674	.000	-9.165	-4.165
	12	-8.630(*)	.674	.000	-11.130	-6.130
2	1	2.057	.674	.293	-.442	4.557
	3	-3.318(*)	.674	.002	-5.817	-.818
	4	-6.310(*)	.674	.000	-8.810	-3.810
	5	.990	.674	1.000	-1.510	3.490
	6	-1.955	.674	.432	-4.455	.545
	7	-4.650(*)	.674	.000	-7.150	-2.150
	8	-6.878(*)	.674	.000	-9.377	-4.378
	9	1.467	.674	1.000	-1.032	3.967
	10	-1.660	.674	1.000	-4.160	.840
	11	-4.608(*)	.674	.000	-7.107	-2.108
	12	-6.572(*)	.674	.000	-9.072	-4.073
3	1	5.375(*)	.674	.000	2.875	7.875
	2	3.318(*)	.674	.002	.818	5.817
	4	-2.992(*)	.674	.006	-5.492	-.493
	5	4.307(*)	.674	.000	1.808	6.807
	6	1.362	.674	1.000	-1.137	3.862
	7	-1.332	.674	1.000	-3.832	1.167
	8	-3.560(*)	.674	.001	-6.060	-1.060
	9	4.785(*)	.674	.000	2.285	7.285
	10	1.657	.674	1.000	-.842	4.157
	11	-1.290	.674	1.000	-3.790	1.210
	12	-3.255(*)	.674	.002	-5.755	-.755
4	1	8.367(*)	.674	.000	5.868	10.867
	2	6.310(*)	.674	.000	3.810	8.810
	3	2.992(*)	.674	.006	.493	5.492
	5	7.300(*)	.674	.000	4.800	9.800
	6	4.355(*)	.674	.000	1.855	6.855
	7	1.660	.674	1.000	-.840	4.160
	8	-.568	.674	1.000	-3.067	1.932
	9	7.777(*)	.674	.000	5.278	10.277
	10	4.650(*)	.674	.000	2.150	7.150
	11	1.702	.674	1.000	-.797	4.202
	12	-.262	.674	1.000	-2.762	2.237
5	1	1.068	.674	1.000	-1.432	3.567
	2	-.990	.674	1.000	-3.490	1.510
	3	-4.307(*)	.674	.000	-6.807	-1.808
	4	-7.300(*)	.674	.000	-9.800	-4.800
	6	-2.945(*)	.674	.008	-5.445	-.445
	7	-5.640(*)	.674	.000	-8.140	-3.140
	8	-7.867(*)	.674	.000	-10.367	-5.368
	9	.477	.674	1.000	-2.022	2.977
	10	-2.650(*)	.674	.027	-5.150	-.150
	11	-5.597(*)	.674	.000	-8.097	-3.098
	12	-7.562(*)	.674	.000	-10.062	-5.063

6	1	4.013(*)	.674	.000	1.513	6.512
	2	1.955	.674	.432	-.545	4.455
	3	-1.362	.674	1.000	-3.862	1.137
	4	-4.355(*)	.674	.000	-6.855	-1.855
	5	2.945(*)	.674	.008	.445	5.445
	7	-2.695(*)	.674	.022	-5.195	-.195
	8	-4.922(*)	.674	.000	-7.422	-2.423
	9	3.422(*)	.674	.001	.923	5.922
	10	.295	.674	1.000	-2.205	2.795
	11	-2.652(*)	.674	.026	-5.152	-.153
	12	-4.617(*)	.674	.000	-7.117	-2.118
7	1	6.708(*)	.674	.000	4.208	9.207
	2	4.650(*)	.674	.000	2.150	7.150
	3	1.332	.674	1.000	-1.167	3.832
	4	-1.660	.674	1.000	-4.160	.840
	5	5.640(*)	.674	.000	3.140	8.140
	6	2.695(*)	.674	.022	.195	5.195
	8	-2.227	.674	.151	-4.727	.272
	9	6.117(*)	.674	.000	3.618	8.617
	10	2.990(*)	.674	.006	.490	5.490
	11	.042	.674	1.000	-2.457	2.542
	12	-1.922	.674	.488	-4.422	.577
8	1	8.935(*)	.674	.000	6.435	11.435
	2	6.878(*)	.674	.000	4.378	9.377
	3	3.560(*)	.674	.001	1.060	6.060
	4	.568	.674	1.000	-1.932	3.067
	5	7.867(*)	.674	.000	5.368	10.367
	6	4.922(*)	.674	.000	2.423	7.422
	7	2.227	.674	.151	-.272	4.727
	9	8.345(*)	.674	.000	5.845	10.845
	10	5.217(*)	.674	.000	2.718	7.717
	11	2.270	.674	.127	-.230	4.770
	12	.305	.674	1.000	-2.195	2.805
9	1	.590	.674	1.000	-1.910	3.090
	2	-1.467	.674	1.000	-3.967	1.032
	3	-4.785(*)	.674	.000	-7.285	-2.285
	4	-7.777(*)	.674	.000	-10.277	-5.278
	5	-.477	.674	1.000	-2.977	2.022
	6	-3.422(*)	.674	.001	-5.922	-.923
	7	-6.117(*)	.674	.000	-8.617	-3.618
	8	-8.345(*)	.674	.000	-10.845	-5.845
	10	-3.127(*)	.674	.003	-5.627	-.628
	11	-6.075(*)	.674	.000	-8.575	-3.575
	12	-8.040(*)	.674	.000	-10.540	-5.540
10	1	3.718(*)	.674	.000	1.218	6.217
	2	1.660	.674	1.000	-.840	4.160
	3	-1.657	.674	1.000	-4.157	.842
	4	-4.650(*)	.674	.000	-7.150	-2.150

		5	2.650(*)	.674	.027	.150	5.150
		6	-.295	.674	1.000	-2.795	2.205
		7	-2.990(*)	.674	.006	-5.490	-.490
		8	-5.217(*)	.674	.000	-7.717	-2.718
		9	3.127(*)	.674	.003	.628	5.627
		11	-2.947(*)	.674	.008	-5.447	-.448
		12	-4.912(*)	.674	.000	-7.412	-2.413
	11	1	6.665(*)	.674	.000	4.165	9.165
		2	4.608(*)	.674	.000	2.108	7.107
		3	1.290	.674	1.000	-1.210	3.790
		4	-1.702	.674	1.000	-4.202	.797
		5	5.597(*)	.674	.000	3.098	8.097
		6	2.652(*)	.674	.026	.153	5.152
		7	-.042	.674	1.000	-2.542	2.457
		8	-2.270	.674	.127	-4.770	.230
		9	6.075(*)	.674	.000	3.575	8.575
		10	2.947(*)	.674	.008	.448	5.447
		12	-1.965	.674	.416	-4.465	.535
	12	1	8.630(*)	.674	.000	6.130	11.130
		2	6.572(*)	.674	.000	4.073	9.072
		3	3.255(*)	.674	.002	.755	5.755
		4	.262	.674	1.000	-2.237	2.762
		5	7.562(*)	.674	.000	5.063	10.062
		6	4.617(*)	.674	.000	2.118	7.117
		7	1.922	.674	.488	-.577	4.422
		8	-.305	.674	1.000	-2.805	2.195
		9	8.040(*)	.674	.000	5.540	10.540
		10	4.912(*)	.674	.000	2.413	7.412
		11	1.965	.674	.416	-.535	4.465
X9	1	2	-2.210	.842	.858	-5.333	.913
		3	-6.068(*)	.842	.000	-9.191	-2.944
		4	-9.657(*)	.842	.000	-12.781	-6.534
		5	-.678	.842	1.000	-3.801	2.446
		6	-3.538(*)	.842	.012	-6.661	-.414
		7	-7.553(*)	.842	.000	-10.676	-4.429
		8	-10.598(*)	.842	.000	-13.721	-7.474
		9	-.100	.842	1.000	-3.223	3.023
		10	-4.108(*)	.842	.002	-7.231	-.984
		11	-8.020(*)	.842	.000	-11.143	-4.897
		12	-10.065(*)	.842	.000	-13.188	-6.942
	2	1	2.210	.842	.858	-.913	5.333
		3	-3.858(*)	.842	.004	-6.981	-.734
		4	-7.448(*)	.842	.000	-10.571	-4.324
		5	1.532	.842	1.000	-1.591	4.656
		6	-1.328	.842	1.000	-4.451	1.796
		7	-5.343(*)	.842	.000	-8.466	-2.219
		8	-8.388(*)	.842	.000	-11.511	-5.264
		9	2.110	.842	1.000	-1.013	5.233

	10	-1.898	.842	1.000	-5.021	1.226
	11	-5.810(*)	.842	.000	-8.933	-2.687
	12	-7.855(*)	.842	.000	-10.978	-4.732
3	1	6.068(*)	.842	.000	2.944	9.191
	2	3.858(*)	.842	.004	.734	6.981
	4	-3.590(*)	.842	.010	-6.713	-.467
	5	5.390(*)	.842	.000	2.267	8.513
	6	2.530	.842	.332	-.593	5.653
	7	-1.485	.842	1.000	-4.608	1.638
	8	-4.530(*)	.842	.000	-7.653	-1.407
	9	5.968(*)	.842	.000	2.844	9.091
	10	1.960	.842	1.000	-1.163	5.083
	11	-1.953	.842	1.000	-5.076	1.171
	12	-3.997(*)	.842	.003	-7.121	-.874
4	1	9.657(*)	.842	.000	6.534	12.781
	2	7.448(*)	.842	.000	4.324	10.571
	3	3.590(*)	.842	.010	.467	6.713
	5	8.980(*)	.842	.000	5.857	12.103
	6	6.120(*)	.842	.000	2.997	9.243
	7	2.105	.842	1.000	-1.018	5.228
	8	-.940	.842	1.000	-4.063	2.183
	9	9.558(*)	.842	.000	6.434	12.681
	10	5.550(*)	.842	.000	2.427	8.673
	11	1.637	.842	1.000	-1.486	4.761
	12	-.407	.842	1.000	-3.531	2.716
5	1	.678	.842	1.000	-2.446	3.801
	2	-1.532	.842	1.000	-4.656	1.591
	3	-5.390(*)	.842	.000	-8.513	-2.267
	4	-8.980(*)	.842	.000	-12.103	-5.857
	6	-2.860	.842	.118	-5.983	.263
	7	-6.875(*)	.842	.000	-9.998	-3.752
	8	-9.920(*)	.842	.000	-13.043	-6.797
	9	.578	.842	1.000	-2.546	3.701
	10	-3.430(*)	.842	.018	-6.553	-.307
	11	-7.343(*)	.842	.000	-10.466	-4.219
	12	-9.387(*)	.842	.000	-12.511	-6.264
6	1	3.538(*)	.842	.012	.414	6.661
	2	1.328	.842	1.000	-1.796	4.451
	3	-2.530	.842	.332	-5.653	.593
	4	-6.120(*)	.842	.000	-9.243	-2.997
	5	2.860	.842	.118	-.263	5.983
	7	-4.015(*)	.842	.002	-7.138	-.892
	8	-7.060(*)	.842	.000	-10.183	-3.937
	9	3.438(*)	.842	.017	.314	6.561
	10	-.570	.842	1.000	-3.693	2.553
	11	-4.483(*)	.842	.000	-7.606	-1.359
	12	-6.527(*)	.842	.000	-9.651	-3.404
7	1	7.553(*)	.842	.000	4.429	10.676

	2	5.343(*)	.842	.000	2.219	8.466
	3	1.485	.842	1.000	-1.638	4.608
	4	-2.105	.842	1.000	-5.228	1.018
	5	6.875(*)	.842	.000	3.752	9.998
	6	4.015(*)	.842	.002	.892	7.138
	8	-3.045	.842	.065	-6.168	.078
	9	7.453(*)	.842	.000	4.329	10.576
	10	3.445(*)	.842	.017	.322	6.568
	11	-.468	.842	1.000	-3.591	2.656
	12	-2.512	.842	.350	-5.636	.611
8	1	10.598(*)	.842	.000	7.474	13.721
	2	8.388(*)	.842	.000	5.264	11.511
	3	4.530(*)	.842	.000	1.407	7.653
	4	.940	.842	1.000	-2.183	4.063
	5	9.920(*)	.842	.000	6.797	13.043
	6	7.060(*)	.842	.000	3.937	10.183
	7	3.045	.842	.065	-.078	6.168
	9	10.498(*)	.842	.000	7.374	13.621
	10	6.490(*)	.842	.000	3.367	9.613
	11	2.578	.842	.287	-.546	5.701
	12	.533	.842	1.000	-2.591	3.656
9	1	.100	.842	1.000	-3.023	3.223
	2	-2.110	.842	1.000	-5.233	1.013
	3	-5.968(*)	.842	.000	-9.091	-2.844
	4	-9.558(*)	.842	.000	-12.681	-6.434
	5	-.578	.842	1.000	-3.701	2.546
	6	-3.438(*)	.842	.017	-6.561	-.314
	7	-7.453(*)	.842	.000	-10.576	-4.329
	8	-10.498(*)	.842	.000	-13.621	-7.374
	10	-4.008(*)	.842	.002	-7.131	-.884
	11	-7.920(*)	.842	.000	-11.043	-4.797
	12	-9.965(*)	.842	.000	-13.088	-6.842
10	1	4.108(*)	.842	.002	.984	7.231
	2	1.898	.842	1.000	-1.226	5.021
	3	-1.960	.842	1.000	-5.083	1.163
	4	-5.550(*)	.842	.000	-8.673	-2.427
	5	3.430(*)	.842	.018	.307	6.553
	6	.570	.842	1.000	-2.553	3.693
	7	-3.445(*)	.842	.017	-6.568	-.322
	8	-6.490(*)	.842	.000	-9.613	-3.367
	9	4.008(*)	.842	.002	.884	7.131
	11	-3.913(*)	.842	.003	-7.036	-.789
	12	-5.957(*)	.842	.000	-9.081	-2.834
11	1	8.020(*)	.842	.000	4.897	11.143
	2	5.810(*)	.842	.000	2.687	8.933
	3	1.953	.842	1.000	-1.171	5.076
	4	-1.637	.842	1.000	-4.761	1.486
	5	7.343(*)	.842	.000	4.219	10.466

	6	4.483(*)	.842	.000	1.359	7.606
	7	.468	.842	1.000	-2.656	3.591
	8	-2.578	.842	.287	-5.701	.546
	9	7.920(*)	.842	.000	4.797	11.043
	10	3.913(*)	.842	.003	.789	7.036
	12	-2.045	.842	1.000	-5.168	1.078
12	1	10.065(*)	.842	.000	6.942	13.188
	2	7.855(*)	.842	.000	4.732	10.978
	3	3.997(*)	.842	.003	.874	7.121
	4	.407	.842	1.000	-2.716	3.531
	5	9.387(*)	.842	.000	6.264	12.511
	6	6.527(*)	.842	.000	3.404	9.651
	7	2.512	.842	.350	-.611	5.636
	8	-.533	.842	1.000	-3.656	2.591
	9	9.965(*)	.842	.000	6.842	13.088
	10	5.957(*)	.842	.000	2.834	9.081
	11	2.045	.842	1.000	-1.078	5.168

Based on estimated marginal means
* The mean difference is significant at the .05 level.
a Adjustment for multiple comparisons: Bonferroni.

OUTPUT C

Group Statistics

Block		Mean	Std. Deviation	Valid N (listwise) Unweighted	Weighted
1	X1	4.47417	.610268	12	12.000
	X2	.11425	.068048	12	12.000
	X3	1.24333	.234921	12	12.000
	X4	186.16667	101.008400	12	12.000
	X5	8.77000	4.258617	12	12.000
	X6	9.04083	1.380043	12	12.000
	X7	.50583	.218152	12	12.000
	X8	5.24000	3.401730	12	12.000
	X9	6.05667	4.271722	12	12.000
2	X1	4.71750	.593390	12	12.000
	X2	.10650	.088044	12	12.000
	X3	1.30250	.256944	12	12.000
	X4	162.75000	90.103098	12	12.000
	X5	7.47750	3.127166	12	12.000
	X6	7.90250	1.514524	12	12.000
	X7	.53750	.211494	12	12.000
	X8	5.59500	3.289030	12	12.000
	X9	6.53833	3.827121	12	12.000

3	X1	4.58250	.561332	12	12.000
	X2	.09492	.065253	12	12.000
	X3	1.35000	.225227	12	12.000
	X4	157.66667	75.201950	12	12.000
	X5	7.51917	2.465738	12	12.000
	X6	7.95333	1.137224	12	12.000
	X7	.32667	.180773	12	12.000
	X8	5.04417	3.070589	12	12.000
	X9	6.60167	4.078250	12	12.000
4	X1	4.90250	.881003	12	12.000
	X2	.09208	.047783	12	12.000
	X3	1.36750	.155863	12	12.000
	X4	158.08333	59.739523	12	12.000
	X5	8.35167	3.159375	12	12.000
	X6	8.96167	1.115917	12	12.000
	X7	.49500	.244708	12	12.000
	X8	6.51917	3.605789	12	12.000
	X9	7.15750	4.212406	12	12.000
Total	X1	4.66917	.671638	48	48.000
	X2	.10194	.067159	48	48.000
	X3	1.31583	.219756	48	48.000
	X4	166.16667	81.160554	48	48.000
	X5	8.02958	3.256250	48	48.000
	X6	8.46458	1.368203	48	48.000
	X7	.46625	.223946	48	48.000
	X8	5.59958	3.288983	48	48.000
	X9	6.58854	3.987459	48	48.000

Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
X1	.942	.902	3	44	.448
X2	.982	.270	3	44	.847
X3	.951	.756	3	44	.525
X4	.979	.319	3	44	.812
X5	.971	.443	3	44	.724
X6	.842	2.747	3	44	.054
X7	.863	2.333	3	44	.087
X8	.970	.458	3	44	.713
X9	.990	.145	3	44	.932

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	1.023(a)	48.3	48.3	.711
2	.872(a)	41.2	89.4	.683

3	.224(a)	10.6	100.0	.428

a First 3 canonical discriminant functions were used in the analysis.

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 3	.216	62.117	27	.000
2 through 3	.436	33.589	16	.006
3	.817	8.192	7	.316

Structure Matrix

	Function		
	1	2	3
X6	.065	.441(*)	.247
X5	.004	.185(*)	.036
X7	.302	.180	-.407(*)
X3	.050	-.129	.392(*)
X1	.200	-.058	.279(*)
X2	-.018	.065	-.253(*)
X8	.147	.035	.188(*)
X4	-.040	.123	-.176(*)
X9	.055	-.033	.162(*)

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions Variables ordered by absolute size of correlation within function.
* Largest absolute correlation between each variable and any discriminant function

Canonical Discriminant Function Coefficients

	Function		
	1	2	3
X1	2.009	-1.922	1.050
X2	12.618	-15.809	-8.005
X3	2.227	.195	4.104
X4	.002	.014	.005
X5	-.408	.593	.362
X6	-.062	.634	.105
X7	6.773	1.034	-2.918
X8	.649	.450	-.072
X9	-.110	-.293	.147
(Constant)	-16.153	-3.181	-13.361

Unstandardized coefficients

Functions at Group Centroids

	Function		
Block	1	2	3
1	-.607	1.285	-.334

2	.864	-.812	-.532
3	-1.269	-.859	.272
4	1.012	.387	.595

Unstandardized canonical discriminant functions evaluated at group means

Classification Function Coefficients

	Block			
	1	2	3	4
X1	41.853	48.632	45.280	47.806
X2	260.456	313.756	281.143	287.640
X3	153.249	155.304	153.844	160.490
X4	.232	.204	.204	.227
X5	-.316	-2.230	-1.097	-1.172
X6	7.993	6.552	6.739	7.421
X7	102.595	110.969	94.128	109.922
X8	-.510	-.485	-1.948	.070
X9	9.864	10.288	10.655	10.085
(Constant)	-315.995	-330.222	-306.723	-351.398

Fisher's linear discriminant functions

Classification Results(b,c)

		Block	Predicted Group Membership				Total
			1	2	3	4	
Original	Count	1	10	1	1	0	12
		2	0	7	2	3	12
		3	0	1	11	0	12
		4	3	1	0	8	12
	%	1	83.3	8.3	8.3	.0	100.0
		2	.0	58.3	16.7	25.0	100.0
		3	.0	8.3	91.7	.0	100.0
		4	25.0	8.3	.0	66.7	100.0
Cross-validated(a)	Count	1	7	1	3	1	12
		2	1	3	4	4	12
		3	1	2	9	0	12
		4	3	3	1	5	12
	%	1	58.3	8.3	25.0	8.3	100.0
		2	8.3	25.0	33.3	33.3	100.0
		3	8.3	16.7	75.0	.0	100.0
		4	25.0	25.0	8.3	41.7	100.0

a Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
b 75.0% of original grouped cases correctly classified.
c 50.0% of cross-validated grouped cases correctly classified.

OUTPUT D

Correlation Matrix

		X1	X2	X3	X4	X5	X6	X7	X8	X9
Correlation	X1	1.000	.637	-.589	.591	.809	-.396	.580	-.693	-.765
	X2	.637	1.000	-.864	.842	.850	-.522	.676	-.812	-.804
	X3	-.589	-.864	1.000	-.794	-.791	.490	-.667	.742	.763
	X4	.591	.842	-.794	1.000	.687	-.489	.556	-.773	-.762
	X5	.809	.850	-.791	.687	1.000	-.427	.721	-.789	-.832
	X6	-.396	-.522	.490	-.489	-.427	1.000	-.357	.565	.508
	X7	.580	.676	-.667	.556	.721	-.357	1.000	-.693	-.753
	X8	-.693	-.812	.742	-.773	-.789	.565	-.693	1.000	.972
	X9	-.765	-.804	.763	-.762	-.832	.508	-.753	.972	1.000
Sig. (1-tailed)	X1		.000	.000	.000	.000	.003	.000	.000	.000
	X2	.000		.000	.000	.000	.000	.000	.000	.000
	X3	.000	.000		.000	.000	.000	.000	.000	.000
	X4	.000	.000	.000		.000	.000	.000	.000	.000
	X5	.000	.000	.000	.000		.001	.000	.000	.000
	X6	.003	.000	.000	.000	.001		.006	.000	.000
	X7	.000	.000	.000	.000	.000	.006		.000	.000
	X8	.000	.000	.000	.000	.000	.000	.000		.000
	X9	.000	.000	.000	.000	.000	.000	.000	.000	

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.849
Bartlett's Test of Sphericity	Approx. Chi-Square	494.954
	df	36
	Sig.	.000

Anti-image Matrices

		X1	X2	X3	X4	X5	X6	X7	X8	X9
Anti-image Covariance	X1	.243	.025	-.047	-.044	-.094	.075	.047	-.030	.033
	X2	.025	.113	.046	-.074	-.060	.020	-.023	.015	-.012
	X3	-.047	.046	.201	.061	.034	-.055	.021	.018	-.015
	X4	-.044	-.074	.061	.221	.052	-.015	.038	.006	.003
	X5	-.094	-.060	.034	.052	.124	-.038	-.026	-.001	.005
	X6	.075	.020	-.055	-.015	-.038	.600	.015	-.049	.032
	X7	.047	-.023	.021	.038	-.026	.015	.353	-.030	.039
	X8	-.030	.015	.018	.006	-.001	-.049	-.030	.034	-.028
	X9	.033	-.012	-.015	.003	.005	.032	.039	-.028	.027
Anti-image Correlation	X1	.817(a)	.153	-.214	-.189	-.542	.195	.162	-.332	.414

X2	.153	.866(a)	.304	-.466	-.504	.077	-.117	.244	-.217
X3	-.214	.304	.915(a)	.287	.218	-.157	.077	.216	-.207
X4	-.189	-.466	.287	.894(a)	.313	-.040	.135	.074	.045
X5	-.542	-.504	.218	.313	.859(a)	-.140	-.127	-.020	.081
X6	.195	.077	-.157	-.040	-.140	.869(a)	.033	-.340	.252
X7	.162	-.117	.077	.135	-.127	.033	.912(a)	-.270	.398
X8	-.332	.244	.216	.074	-.020	-.340	-.270	.787(a)	-.921
X9	.414	-.217	-.207	.045	.081	.252	.398	-.921	.784(a)

a Measures of Sampling Adequacy(MSA)

Communalities

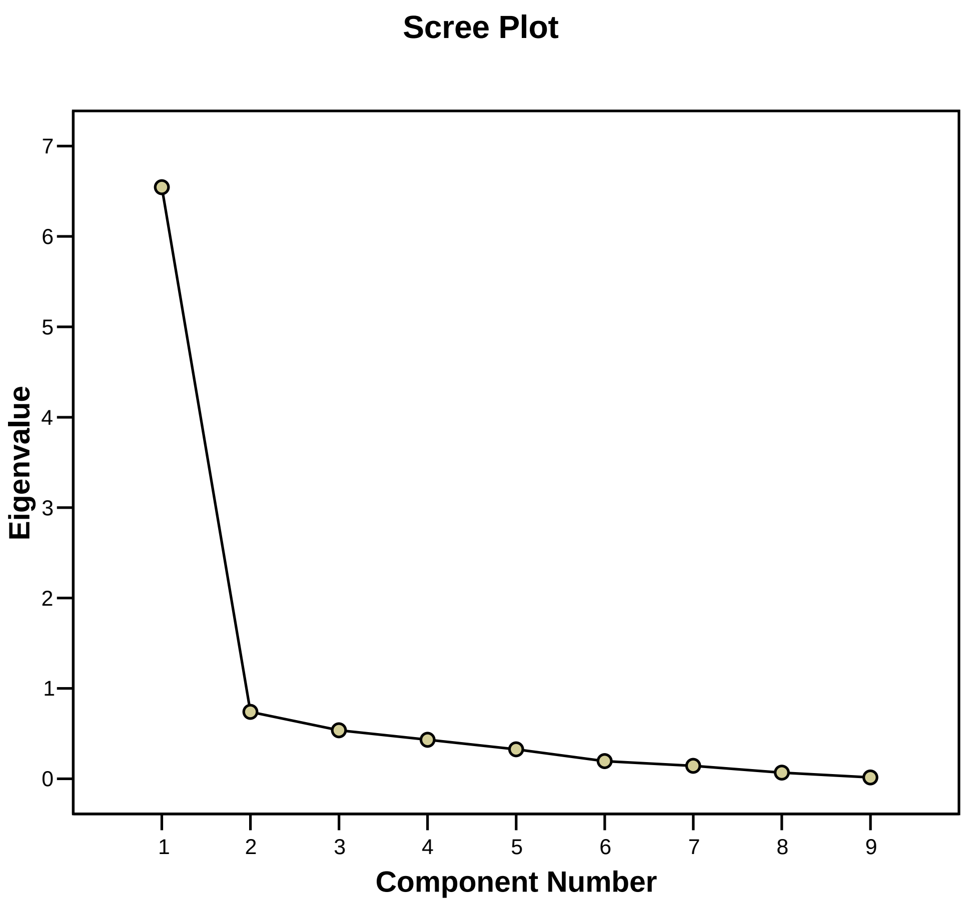
	Initial	Extraction
X1	1.000	.631
X2	1.000	.851
X3	1.000	.778
X4	1.000	.730
X5	1.000	.830
X6	1.000	.358
X7	1.000	.621
X8	1.000	.857
X9	1.000	.889

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.545	72.723	72.723	6.545	72.723	72.723
2	.740	8.224	80.947			
3	.536	5.957	86.904			
4	.432	4.796	91.700			
5	.326	3.623	95.323			
6	.195	2.167	97.490			
7	.143	1.588	99.079			
8	.068	.753	99.831			
9	.015	.169	100.000			

Extraction Method: Principal Component Analysis.



Component Matrix(a)

	Component
	1
X1	.795
X2	.923
X3	-.882
X4	.854
X5	.911
X6	-.598
X7	.788
X8	-.926
X9	-.943

Extraction Method: Principal Component Analysis.
a 1 components extracted.

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