```
NPAR TESTS
 /FRIEDMAN=Cartesian Cartesian_ColouredPolar Polar_Coloured
 /STATISTICS QUARTILES
 /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:26:33
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Cartesian Cartesian_Coloured Polar Polar_Coloured /STATISTICS QUARTILES /MISSING LISTWISE.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Descriptive Statistics

		Percentiles		
	N	25th	50th (Median)	75th
Cartesian	84	7.8418	11.2555	18.8235
Cartesian_Coloured	84	5.5235	9.4990	16.5418
Polar	84	4.0585	5.6025	10.0105
Polar_Coloured	84	6.0608	10.1815	16.8460

Friedman Test

Ranks

	Mean Rank
Cartesian	2.96
Cartesian_Coloured	2.49
Polar	1.83
Polar_Coloured	2.72

Test Statistics[a]

N	84
Chi-Square	36.161
df	3
Asymp. Sig.	.000

a. Friedman Test

```
 NPAR TESTS
  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_ColouredCartesian_Coloure
d Polar WITH Cartesian_ColouredPolar Polar_ColouredPolar Polar_ColouredPola
r_Coloured (PAIRED)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:26:49
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /WILCOXON=Cartesian Cartesian Cartesian Cartesian_Coloured Cartesian_Coloured Polar WITH Cartesian_Coloured Polar Polar_Coloured Polar Polar_Coloured Polar_Coloured (PAIRED) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Cartesian_Coloured - Cartesian	Negative Ranks	49[a]	45.93	2250.50
	Positive Ranks	35[b]	37.70	1319.50
	Ties	0[c]		
	Total	84		
Polar - Cartesian	Negative Ranks	67[d]	42.81	2868.00
	Positive Ranks	17[e]	41.29	702.00
	Ties	0[f]		
	Total	84		
Polar_Coloured - Cartesian	Negative Ranks	49[g]	45.45	2227.00
	Positive Ranks	35[h]	38.37	1343.00
	Ties	0[i]		
	Total	84		
Polar - Cartesian_Coloured	Negative Ranks	55[j]	43.22	2377.00
	Positive Ranks	29[k]	41.14	1193.00
	Ties	0[l]		
	Total	84		
Polar_Coloured - Cartesian_Coloured	Negative Ranks	35[m]	45.37	1588.00
	Positive Ranks	49[n]	40.45	1982.00
	Ties	0[o]		
	Total	84		
Polar_Coloured - Polar	Negative Ranks	23[p]	40.15	923.50
	Positive Ranks	60[q]	42.71	2562.50
	Ties	1[r]		
	Total	84		

a. Cartesian_Coloured < Cartesian

b. Cartesian_Coloured > Cartesian

c. Cartesian_Coloured = Cartesian

d. Polar < Cartesian

e. Polar > Cartesian

f. Polar = Cartesian

g. Polar_Coloured < Cartesian

h. Polar_Coloured > Cartesian

i. Polar_Coloured = Cartesian

j. Polar < Cartesian_Coloured

k. Polar > Cartesian_Coloured

l. Polar = Cartesian_Coloured

m. Polar_Coloured < Cartesian_Coloured

n. Polar_Coloured < Cartesian_Coloured

n. Polar_Coloured > Cartesian_Coloured

o. Polar_Coloured = Cartesian_Coloured

p. Polar_Coloured < Polar

q. Polar_Coloured > Polar

r. Polar_Coloured = Polar

Test Statistics[a]

	Cartesian_Coloured - Cartesian	Polar - Cartesian	Polar_Coloured - Cartesian	Polar - Cartesian_Coloured	Polar_Coloured - Cartesian_Coloured
Z	-2.076[b]	-4.830[b]	-1.971[b]	-2.640[b]	-.879[c]
Asymp. Sig. (2-tailed)	.038	.000	.049	.008	.380

Test Statistics[a]

	Polar_Coloured - Polar
Z	-3.721[c]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

```
NPAR TESTS
 /FRIEDMAN=Cartesian Cartesian_ColouredPolar Polar_Coloured
 /STATISTICS QUARTILES
 /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:28:40
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.

Syntax		NPAR TESTS
		 /FRIEDMAN=Cartesian Cartesian_Coloured Polar Polar_Coloured
		  /STATISTICS QUARTILES
		  /MISSING LISTWISE.

Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Descriptive Statistics

		Percentiles		
	N	25th	50th (Median)	75th
Cartesian	84	5.5482	9.6905	17.0378
Cartesian_Coloured	84	5.6770	8.1255	14.4233
Polar	84	5.4030	8.5245	14.9020
Polar_Coloured	84	4.1738	6.9435	13.2490

Friedman Test

Ranks

	Mean Rank
Cartesian	2.76
Cartesian_Coloured	2.48
Polar	2.60
Polar_Coloured	2.17

Test Statistics[a]

N	84
Chi-Square	9.543
df	3
Asymp. Sig.	.023

a. Friedman Test

```
 NPAR TESTS
  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_ColouredCartesian_Coloure
d Polar WITH Cartesian_ColouredPolar Polar_ColouredPolar Polar_ColouredPola
r_Coloured (PAIRED)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:28:51
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.

Syntax		NPAR TESTS
		  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_Coloured Cartesian_Coloured Polar WITH Cartesian_Coloured Polar Polar_Coloured Polar Polar_Coloured Polar_Coloured (PAIRED)
		  /MISSING ANALYSIS.

Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Cartesian_Coloured - Cartesian	Negative Ranks	53[a]	43.72	2317.00
	Positive Ranks	31[b]	40.42	1253.00
	Ties	0[c]		
	Total	84		
Polar - Cartesian	Negative Ranks	45[d]	46.77	2104.50
	Positive Ranks	39[e]	37.58	1465.50
	Ties	0[f]		
	Total	84		
Polar_Coloured - Cartesian	Negative Ranks	50[g]	45.71	2285.50
	Positive Ranks	34[h]	37.78	1284.50
	Ties	0[i]		
	Total	84		
Polar - Cartesian_Coloured	Negative Ranks	39[j]	41.15	1605.00
	Positive Ranks	45[k]	43.67	1965.00
	Ties	0[l]		
	Total	84		
Polar_Coloured - Cartesian_Coloured	Negative Ranks	54[m]	37.90	2046.50
	Positive Ranks	30[n]	50.78	1523.50
	Ties	0[o]		
	Total	84		
Polar_Coloured - Polar	Negative Ranks	50[p]	41.53	2076.50
	Positive Ranks	34[q]	43.93	1493.50
	Ties	0[r]		
	Total	84		

a. Cartesian_Coloured < Cartesian

b. Cartesian_Coloured > Cartesian

c. Cartesian_Coloured = Cartesian

d. Polar < Cartesian

e. Polar > Cartesian

f. Polar = Cartesian

g. Polar_Coloured < Cartesian

h. Polar_Coloured > Cartesian

i. Polar_Coloured = Cartesian

j. Polar < Cartesian_Coloured

k. Polar > Cartesian_Coloured

l. Polar = Cartesian_Coloured

l. Polar = Cartesian_Coloured

m. Polar_Coloured < Cartesian_Coloured

n. Polar_Coloured > Cartesian_Coloured

o. Polar_Coloured = Cartesian_Coloured

p. Polar_Coloured < Polar

q. Polar_Coloured > Polar

r. Polar_Coloured = Polar

Test Statistics[a]

	Cartesian_Coloured - Cartesian	Polar - Cartesian	Polar_Coloured - Cartesian	Polar - Cartesian_Coloured	Polar_Coloured - Cartesian_Coloured
Z	-2.373[b]	-1.425[b]	-2.232[b]	-.803[c]	-1.166[b]
Asymp. Sig. (2-tailed)	.018	.154	.026	.422	.244

Test Statistics[a]

	Polar_Coloured - Polar
Z	-1.300[b]
Asymp. Sig. (2-tailed)	.194

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

```
NPAR TESTS
 /FRIEDMAN=Cartesian Cartesian_ColouredPolar Polar_Coloured
 /STATISTICS QUARTILES
 /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:34:38
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Cartesian Cartesian_Coloured Polar Polar_Coloured /STATISTICS QUARTILES /MISSING LISTWISE.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Descriptive Statistics

		Percentiles		
	N	25th	50th (Median)	75th
Cartesian	84	5.2033	10.0150	18.9858
Cartesian_Coloured	84	4.5500	6.9100	9.9488
Polar	84	6.8395	10.4400	18.0408
Polar_Coloured	84	3.1218	5.4115	8.0130

Friedman Test

Ranks

	Mean Rank
Cartesian	2.96
Cartesian_Coloured	2.10
Polar	3.17
Polar_Coloured	1.77

Test Statistics[a]

N	84
Chi-Square	68.100
df	3
Asymp. Sig.	.000

a. Friedman Test

```
 NPAR TESTS
  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_ColouredCartesian_Coloure
d Polar WITH Cartesian_ColouredPolar Polar_Coloured Polar Polar_Coloured Pola
r_Coloured (PAIRED)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:34:47
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.

Syntax		NPAR TESTS
		  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_Coloured Cartesian_Coloured Polar WITH Cartesian_Coloured Polar Polar_Coloured Polar Polar_Coloured Polar_Coloured (PAIRED)
		  /MISSING ANALYSIS.

Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Cartesian_Coloured - Cartesian	Negative Ranks	60[a]	48.40	2904.00
	Positive Ranks	24[b]	27.75	666.00
	Ties	0[c]		
	Total	84		
Polar - Cartesian	Negative Ranks	38[d]	44.71	1699.00
	Positive Ranks	46[e]	40.67	1871.00
	Ties	0[f]		
	Total	84		
Polar_Coloured - Cartesian	Negative Ranks	67[g]	46.49	3114.50
	Positive Ranks	17[h]	26.79	455.50
	Ties	0[i]		
	Total	84		
Polar - Cartesian_Coloured	Negative Ranks	21[j]	20.86	438.00
	Positive Ranks	63[k]	49.71	3132.00
	Ties	0[l]		
	Total	84		
Polar_Coloured - Cartesian_Coloured	Negative Ranks	47[m]	46.60	2190.00
	Positive Ranks	37[n]	37.30	1380.00
	Ties	0[o]		
	Total	84		
Polar_Coloured - Polar	Negative Ranks	73[p]	43.38	3167.00
	Positive Ranks	11[q]	36.64	403.00
	Ties	0[r]		
	Total	84		

a. Cartesian_Coloured < Cartesian

b. Cartesian_Coloured > Cartesian

c. Cartesian_Coloured = Cartesian

d. Polar < Cartesian

e. Polar > Cartesian

f. Polar = Cartesian

g. Polar_Coloured < Cartesian

h. Polar_Coloured > Cartesian

i. Polar_Coloured = Cartesian

j. Polar < Cartesian_Coloured

k. Polar > Cartesian_Coloured

l. Polar = Cartesian_Coloured

l. Polar = Cartesian_Coloured

m. Polar_Coloured < Cartesian_Coloured

n. Polar_Coloured > Cartesian_Coloured

o. Polar_Coloured = Cartesian_Coloured

p. Polar_Coloured < Polar

q. Polar_Coloured > Polar

r. Polar_Coloured = Polar

Test Statistics[a]

	Cartesian_Coloured - Cartesian	Polar - Cartesian	Polar_Coloured - Cartesian	Polar - Cartesian_Coloured	Polar_Coloured - Cartesian_Coloured
Z	-4.990[b]	-.384[c]	-5.929[b]	-6.007[c]	-1.806[b]
Asymp. Sig. (2-tailed)	.000	.701	.000	.000	.071

Test Statistics[a]

	Polar_Coloured - Polar
Z	-6.163[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

```
NPAR TESTS
 /FRIEDMAN=Cartesian Cartesian_ColouredPolar Polar_Coloured
 /STATISTICS QUARTILES
 /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:35:59
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.

Syntax		NPAR TESTS
		  /FRIEDMAN=Cartesian Cartesian_Coloured Polar Polar_Coloured
		  /STATISTICS QUARTILES
		  /MISSING LISTWISE.

Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Descriptive Statistics

		Percentiles		
	N	25th	50th (Median)	75th
Cartesian	84	4.5497	6.7435	14.6605
Cartesian_Coloured	84	4.7080	7.3175	10.6393
Polar	84	5.3948	9.8320	15.5428
Polar_Coloured	84	3.5753	5.6780	8.9328

Friedman Test

Ranks

	Mean Rank
Cartesian	2.62
Cartesian_Coloured	2.49
Polar	2.80
Polar_Coloured	2.10

Test Statistics[a]

N	84
Chi-Square	13.443
df	3
Asymp. Sig.	.004

a. Friedman Test

```
 NPAR TESTS
  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_ColouredCartesian_Coloure
d Polar WITH Cartesian_ColouredPolar Polar_ColouredPolar Polar_ColouredPola
r_Coloured (PAIRED)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:36:08
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /WILCOXON=Cartesian Cartesian Cartesian Cartesian_Coloured Cartesian_Coloured Polar WITH Cartesian_Coloured Polar Polar_Coloured Polar Polar_Coloured Polar_Coloured (PAIRED) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Cartesian_Coloured - Cartesian	Negative Ranks	43[a]	48.22	2073.50
	Positive Ranks	41[b]	36.50	1496.50
	Ties	0[c]		
	Total	84		
Polar - Cartesian	Negative Ranks	40[d]	38.44	1537.50
	Positive Ranks	44[e]	46.19	2032.50
	Ties	0[f]		
	Total	84		
Polar_Coloured - Cartesian	Negative Ranks	53[g]	46.83	2482.00
	Positive Ranks	31[h]	35.10	1088.00
	Ties	0[i]		
	Total	84		
Polar - Cartesian_Coloured	Negative Ranks	30[j]	35.62	1068.50
	Positive Ranks	54[k]	46.32	2501.50
	Ties	0[l]		
	Total	84		
Polar_Coloured - Cartesian_Coloured	Negative Ranks	54[m]	42.03	2269.50
	Positive Ranks	30[n]	43.35	1300.50
	Ties	0[o]		
	Total	84		
Polar_Coloured - Polar	Negative Ranks	53[p]	49.39	2617.50
	Positive Ranks	31[q]	30.73	952.50
	Ties	0[r]		
	Total	84		

a. Cartesian_Coloured < Cartesian

b. Cartesian_Coloured > Cartesian

c. Cartesian_Coloured = Cartesian

d. Polar < Cartesian

e. Polar > Cartesian

f. Polar = Cartesian

g. Polar_Coloured < Cartesian

h. Polar_Coloured > Cartesian

i. Polar_Coloured = Cartesian

j. Polar < Cartesian_Coloured

k. Polar > Cartesian_Coloured

l. Polar = Cartesian_Coloured

l. Polar = Cartesian_Coloured

m. Polar_Coloured < Cartesian_Coloured

n. Polar_Coloured > Cartesian_Coloured

o. Polar_Coloured = Cartesian_Coloured

p. Polar_Coloured < Polar

q. Polar_Coloured > Polar

r. Polar_Coloured = Polar

Test Statistics[a]

	Cartesian_Coloured - Cartesian	Polar - Cartesian	Polar_Coloured - Cartesian	Polar - Cartesian_Coloured	Polar_Coloured - Cartesian_Coloured
Z	-1.287[b]	-1.104[c]	-3.108[b]	-3.195[c]	-2.161[b]
Asymp. Sig. (2-tailed)	.198	.270	.002	.001	.031

Test Statistics[a]

	Polar_Coloured - Polar
Z	-3.713[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

```
NPAR TESTS
 /FRIEDMAN=Cartesian Cartesian_ColouredPolar Polar_Coloured
 /STATISTICS QUARTILES
 /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:37:16
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.

Syntax		NPAR TESTS
		  /FRIEDMAN=Cartesian Cartesian_Coloured Polar Polar_Coloured
		   /STATISTICS QUARTILES
		   /MISSING LISTWISE.

Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Descriptive Statistics

		Percentiles		
	N	25th	50th (Median)	75th
Cartesian	84	4.8862	8.1335	15.8883
Cartesian_Coloured	84	3.8705	5.4445	8.9080
Polar	84	6.4515	11.0140	18.4527
Polar_Coloured	84	2.8178	3.8295	6.0810

Friedman Test

Ranks

	Mean Rank
Cartesian	2.97
Cartesian_Coloured	2.04
Polar	3.39
Polar_Coloured	1.61

Test Statistics[a]

N	84
Chi-Square	101.954
df	3
Asymp. Sig.	.000

a. Friedman Test

```
 NPAR TESTS
  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_ColouredCartesian_Coloure
d Polar WITH Cartesian_ColouredPolar Polar_Coloured Polar Polar_ColouredPola
r_Coloured (PAIRED)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:37:31
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /WILCOXON=Cartesian Cartesian Cartesian Cartesian_Coloured Cartesian_Coloured Polar WITH Cartesian_Coloured Polar Polar_Coloured Polar Polar_Coloured Polar_Coloured (PAIRED) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Cartesian_Coloured - Cartesian	Negative Ranks	60[a]	47.88	2872.50
	Positive Ranks	24[b]	29.06	697.50
	Ties	0[c]		
	Total	84		
Polar - Cartesian	Negative Ranks	34[d]	37.15	1263.00
	Positive Ranks	49[e]	45.37	2223.00
	Ties	1[f]		
	Total	84		
Polar_Coloured - Cartesian	Negative Ranks	71[g]	46.44	3297.00
	Positive Ranks	13[h]	21.00	273.00
	Ties	0[i]		
	Total	84		
Polar - Cartesian_Coloured	Negative Ranks	9[j]	30.06	270.50
	Positive Ranks	75[k]	43.99	3299.50
	Ties	0[l]		
	Total	84		
Polar_Coloured - Cartesian_Coloured	Negative Ranks	54[m]	48.86	2638.50
	Positive Ranks	30[n]	31.05	931.50
	Ties	0[o]		
	Total	84		
Polar_Coloured - Polar	Negative Ranks	76[p]	45.34	3446.00
	Positive Ranks	8[q]	15.50	124.00
	Ties	0[r]		
	Total	84		

a. Cartesian_Coloured < Cartesian

b. Cartesian_Coloured > Cartesian

c. Cartesian_Coloured = Cartesian

d. Polar < Cartesian

e. Polar > Cartesian

f. Polar = Cartesian

g. Polar_Coloured < Cartesian

h. Polar_Coloured > Cartesian

i. Polar_Coloured = Cartesian

j. Polar < Cartesian_Coloured

k. Polar > Cartesian_Coloured

l. Polar = Cartesian_Coloured

l. Polar = Cartesian_Coloured

m. Polar_Coloured < Cartesian_Coloured

n. Polar_Coloured > Cartesian_Coloured

o. Polar_Coloured = Cartesian_Coloured

p. Polar_Coloured < Polar

q. Polar_Coloured > Polar

r. Polar_Coloured = Polar

Test Statistics[a]

	Cartesian_Coloured - Cartesian	Polar - Cartesian	Polar_Coloured - Cartesian	Polar - Cartesian_Coloured	Polar_Coloured - Cartesian_Coloured
Z	-4.850[b]	-2.179[c]	-6.743[b]	-6.754[c]	-3.806[b]
Asymp. Sig. (2-tailed)	.000	.029	.000	.000	.000

Test Statistics[a]

	Polar_Coloured - Polar
Z	-7.408[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

```
NPAR TESTS
 /FRIEDMAN=Cartesian Cartesian_ColouredPolar Polar_Coloured
 /STATISTICS QUARTILES
 /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:45:54
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Cartesian Cartesian_Coloured Polar Polar_Coloured /STATISTICS QUARTILES /MISSING LISTWISE.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Descriptive Statistics

		Percentiles		
	N	25th	50th (Median)	75th
Cartesian	84	3.8585	6.1940	10.7393
Cartesian_Coloured	84	3.2678	5.3030	7.5388
Polar	84	5.0828	8.4500	17.1080
Polar_Coloured	84	2.9348	4.5810	7.5593

Friedman Test

Ranks

	Mean Rank
Cartesian	2.69
Cartesian_Coloured	2.06
Polar	3.15
Polar_Coloured	2.10

Test Statistics[a]

N	84
Chi-Square	41.471
df	3
Asymp. Sig.	.000

a. Friedman Test

```
NPAR TESTS
 /WILCOXON=Cartesian Cartesian Cartesian Cartesian_ColouredCartesian_Coloure
d Polar WITH Cartesian_ColouredPolar Polar_ColouredPolar Polar_ColouredPola
r_Coloured (PAIRED)
 /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:46:02
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /WILCOXON=Cartesian Cartesian Cartesian Cartesian_Coloured Cartesian_Coloured Polar WITH Cartesian_Coloured Polar Polar_Coloured Polar Polar_Coloured Polar_Coloured (PAIRED) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Cartesian_Coloured - Cartesian	Negative Ranks	55[a]	44.16	2429.00
	Positive Ranks	29[b]	39.34	1141.00
	Ties	0[c]		
	Total	84		
Polar - Cartesian	Negative Ranks	33[d]	36.65	1209.50
	Positive Ranks	51[e]	46.28	2360.50
	Ties	0[f]		
	Total	84		
Polar_Coloured - Cartesian	Negative Ranks	54[g]	44.79	2418.50
	Positive Ranks	30[h]	38.38	1151.50
	Ties	0[i]		
	Total	84		
Polar - Cartesian_Coloured	Negative Ranks	18[j]	27.36	492.50
	Positive Ranks	66[k]	46.63	3077.50
	Ties	0[l]		
	Total	84		
Polar_Coloured - Cartesian_Coloured	Negative Ranks	42[m]	44.87	1884.50
	Positive Ranks	42[n]	40.13	1685.50
	Ties	0[o]		
	Total	84		
Polar_Coloured - Polar	Negative Ranks	64[p]	46.10	2950.50
	Positive Ranks	20[q]	30.98	619.50
	Ties	0[r]		
	Total	84		

a. Cartesian_Coloured < Cartesian

b. Cartesian_Coloured > Cartesian

c. Cartesian_Coloured = Cartesian

d. Polar < Cartesian

e. Polar > Cartesian

f. Polar = Cartesian

g. Polar_Coloured < Cartesian

h. Polar_Coloured > Cartesian

i. Polar_Coloured = Cartesian

j. Polar < Cartesian_Coloured

k. Polar > Cartesian_Coloured

l. Polar = Cartesian_Coloured

l. Polar = Cartesian_Coloured

m. Polar_Coloured < Cartesian_Coloured

n. Polar_Coloured > Cartesian_Coloured

o. Polar_Coloured = Cartesian_Coloured

p. Polar_Coloured < Polar

q. Polar_Coloured > Polar

r. Polar_Coloured = Polar

Test Statistics[a]

	Cartesian_Coloured - Cartesian	Polar - Cartesian	Polar_Coloured - Cartesian	Polar - Cartesian_Coloured	Polar_Coloured - Cartesian_Coloured
Z	-2.872[b]	-2.567[c]	-2.825[b]	-5.764[c]	-.444[b]
Asymp. Sig. (2-tailed)	.004	.010	.005	.000	.657

Test Statistics[a]

	Polar_Coloured - Polar
Z	-5.198[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

```
NPAR TESTS
 /FRIEDMAN=Cartesian Cartesian_ColouredPolar Polar_Coloured
 /STATISTICS QUARTILES
 /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:46:59
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.

Syntax		NPAR TESTS
		  /FRIEDMAN=Cartesian Cartesian_Coloured Polar Polar_Coloured
		  /STATISTICS QUARTILES
		  /MISSING LISTWISE.

Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Descriptive Statistics

		Percentiles		
	N	25th	50th (Median)	75th
Cartesian	84	4.2458	6.2105	13.0578
Cartesian_Coloured	84	2.1555	3.0055	5.5868
Polar	84	4.8700	7.5595	12.6795
Polar_Coloured	84	2.0023	2.7470	3.7750

Friedman Test

Ranks

	Mean Rank
Cartesian	3.12
Cartesian_Coloured	1.93
Polar	3.29
Polar_Coloured	1.67

Test Statistics[a]

N	84
Chi-Square	101.886
df	3
Asymp. Sig.	.000

a. Friedman Test

```
 NPAR TESTS
  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_ColouredCartesian_Coloure
d Polar WITH Cartesian_ColouredPolar Polar_ColouredPolar Polar_ColouredPola
r_Coloured (PAIRED)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:47:05
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.

Syntax		NPAR TESTS
		  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_Coloured Cartesian_Coloured Polar WITH Cartesian_Coloured Polar Polar_Coloured Polar Polar_Coloured Polar_Coloured (PAIRED)
		  /MISSING ANALYSIS.

Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Cartesian_Coloured - Cartesian	Negative Ranks	66[a]	47.17	3113.50
	Positive Ranks	18[b]	25.36	456.50
	Ties	0[c]		
	Total	84		
Polar - Cartesian	Negative Ranks	41[d]	41.17	1688.00
	Positive Ranks	43[e]	43.77	1882.00
	Ties	0[f]		
	Total	84		
Polar_Coloured - Cartesian	Negative Ranks	71[g]	47.97	3406.00
	Positive Ranks	13[h]	12.62	164.00
	Ties	0[i]		
	Total	84		
Polar - Cartesian_Coloured	Negative Ranks	11[j]	21.95	241.50
	Positive Ranks	73[k]	45.60	3328.50
	Ties	0[l]		
	Total	84		
Polar_Coloured - Cartesian_Coloured	Negative Ranks	49[m]	46.05	2256.50
	Positive Ranks	35[n]	37.53	1313.50
	Ties	0[o]		
	Total	84		
Polar_Coloured - Polar	Negative Ranks	76[p]	45.01	3421.00
	Positive Ranks	8[q]	18.63	149.00
	Ties	0[r]		
	Total	84		

a. Cartesian_Coloured < Cartesian

b. Cartesian_Coloured > Cartesian

c. Cartesian_Coloured = Cartesian

d. Polar < Cartesian

e. Polar > Cartesian

f. Polar = Cartesian

g. Polar_Coloured < Cartesian

h. Polar_Coloured > Cartesian

i. Polar_Coloured = Cartesian

j. Polar < Cartesian_Coloured

k. Polar > Cartesian_Coloured

l. Polar = Cartesian_Coloured

l. Polar = Cartesian_Coloured

m. Polar_Coloured < Cartesian_Coloured

n. Polar_Coloured > Cartesian_Coloured

o. Polar_Coloured = Cartesian_Coloured

p. Polar_Coloured < Polar

q. Polar_Coloured > Polar

r. Polar_Coloured = Polar

Test Statistics[a]

	Cartesian_Coloured - Cartesian	Polar - Cartesian	Polar_Coloured - Cartesian	Polar - Cartesian_Coloured	Polar_Coloured - Cartesian_Coloured
Z	-5.925[b]	-.433[c]	-7.229[b]	-6.884[c]	-2.103[b]
Asymp. Sig. (2-tailed)	.000	.665	.000	.000	.035

Test Statistics[a]

	Polar_Coloured - Polar
Z	-7.296[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

```
NPAR TESTS
 /FRIEDMAN=Cartesian Cartesian_ColouredPolar Polar_Coloured
 /STATISTICS QUARTILES
 /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:47:38
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Cartesian Cartesian_Coloured Polar Polar_Coloured /STATISTICS QUARTILES /MISSING LISTWISE.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Descriptive Statistics

	N	Percentiles		
		25th	50th (Median)	75th
Cartesian	84	3.1343	4.7620	7.3798
Cartesian_Coloured	84	1.9402	3.1305	4.8075
Polar	84	4.0463	5.6440	8.5000
Polar_Coloured	84	2.1062	2.9720	3.9715

Friedman Test

Ranks

	Mean Rank
Cartesian	2.99
Cartesian_Coloured	1.92
Polar	3.25
Polar_Coloured	1.84

Test Statistics[a]

N	84
Chi-Square	79.255
df	3
Asymp. Sig.	.000

a. Friedman Test

```
NPAR TESTS
  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_ColouredCartesian_Coloure
d Polar WITH Cartesian_ColouredPolar Polar_ColouredPolar Polar_ColouredPola
r_Coloured (PAIRED)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:47:45
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.

Syntax		NPAR TESTS
		  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_Coloured Cartesian_Coloured Polar WITH Cartesian_Coloured Polar Polar_Coloured Polar Polar_Coloured Polar_Coloured (PAIRED)
		  /MISSING ANALYSIS.

Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Cartesian_Coloured - Cartesian	Negative Ranks	65[a]	43.88	2852.50
	Positive Ranks	19[b]	37.76	717.50
	Ties	0[c]		
	Total	84		
Polar - Cartesian	Negative Ranks	37[d]	41.08	1520.00
	Positive Ranks	47[e]	43.62	2050.00
	Ties	0[f]		
	Total	84		
Polar_Coloured - Cartesian	Negative Ranks	65[g]	48.45	3149.00
	Positive Ranks	19[h]	22.16	421.00
	Ties	0[i]		
	Total	84		
Polar - Cartesian_Coloured	Negative Ranks	14[j]	26.82	375.50
	Positive Ranks	70[k]	45.64	3194.50
	Ties	0[l]		
	Total	84		
Polar_Coloured - Cartesian_Coloured	Negative Ranks	44[m]	43.57	1917.00
	Positive Ranks	39[n]	40.23	1569.00
	Ties	1[o]		
	Total	84		
Polar_Coloured - Polar	Negative Ranks	72[p]	45.01	3240.50
	Positive Ranks	12[q]	27.46	329.50
	Ties	0[r]		
	Total	84		

a. Cartesian_Coloured < Cartesian

b. Cartesian_Coloured > Cartesian

c. Cartesian_Coloured = Cartesian

d. Polar < Cartesian

e. Polar > Cartesian

f. Polar = Cartesian

g. Polar_Coloured < Cartesian

h. Polar_Coloured > Cartesian

i. Polar_Coloured = Cartesian

j. Polar < Cartesian_Coloured

k. Polar > Cartesian_Coloured

l. Polar = Cartesian_Coloured

l. Polar = Cartesian_Coloured

m. Polar_Coloured < Cartesian_Coloured

n. Polar_Coloured > Cartesian_Coloured

o. Polar_Coloured = Cartesian_Coloured

p. Polar_Coloured < Polar

q. Polar_Coloured > Polar

r. Polar_Coloured = Polar

Test Statistics[a]

	Cartesian_Coloured - Cartesian	Polar - Cartesian	Polar_Coloured - Cartesian	Polar - Cartesian_Coloured	Polar_Coloured - Cartesian_Coloured
Z	-4.761[b]	-1.182[c]	-6.083[b]	-6.286[c]	-.790[b]
Asymp. Sig. (2-tailed)	.000	.237	.000	.000	.430

Test Statistics[a]

	Polar_Coloured - Polar
Z	-6.491[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

```
NPAR TESTS
 /FRIEDMAN=Cartesian Cartesian_ColouredPolar Polar_Coloured
 /STATISTICS QUARTILES
 /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:48:37
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.
Syntax		NPAR TESTS /FRIEDMAN=Cartesian Cartesian_Coloured Polar Polar_Coloured /STATISTICS QUARTILES /MISSING LISTWISE.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Descriptive Statistics

		Percentiles		
	N	25th	50th (Median)	75th
Cartesian	84	3.4505	5.9525	8.6038
Cartesian_Coloured	84	2.0353	2.8225	4.9238
Polar	84	4.1705	7.4175	14.6223
Polar_Coloured	84	2.0853	2.9305	3.9793

Friedman Test

Ranks

	Mean Rank
Cartesian	2.88
Cartesian_Coloured	1.88
Polar	3.40
Polar_Coloured	1.83

Test Statistics[a]

N	84
Chi-Square	90.286
df	3
Asymp. Sig.	.000

a. Friedman Test

```
 NPAR TESTS
  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_ColouredCartesian_Coloure
d Polar WITH Cartesian_ColouredPolar Polar_ColouredPolar Polar_ColouredPola
r_Coloured (PAIRED)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:48:44
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.

Syntax		NPAR TESTS
		  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_Coloured Cartesian_Coloured Polar WITH Cartesian_Coloured Polar Polar_Coloured Polar Polar_Coloured Polar_Coloured (PAIRED)
		  /MISSING ANALYSIS.

Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Cartesian_Coloured - Cartesian	Negative Ranks	64[a]	47.48	3039.00
	Positive Ranks	20[b]	26.55	531.00
	Ties	0[c]		
	Total	84		
Polar - Cartesian	Negative Ranks	29[d]	37.21	1079.00
	Positive Ranks	55[e]	45.29	2491.00
	Ties	0[f]		
	Total	84		
Polar_Coloured - Cartesian	Negative Ranks	65[g]	46.83	3044.00
	Positive Ranks	19[h]	27.68	526.00
	Ties	0[i]		
	Total	84		
Polar - Cartesian_Coloured	Negative Ranks	12[j]	20.17	242.00
	Positive Ranks	72[k]	46.22	3328.00
	Ties	0[l]		
	Total	84		
Polar_Coloured - Cartesian_Coloured	Negative Ranks	42[m]	40.77	1712.50
	Positive Ranks	42[n]	44.23	1857.50
	Ties	0[o]		
	Total	84		
Polar_Coloured - Polar	Negative Ranks	75[p]	43.73	3279.50
	Positive Ranks	9[q]	32.28	290.50
	Ties	0[r]		
	Total	84		

a. Cartesian_Coloured < Cartesian

b. Cartesian_Coloured > Cartesian

c. Cartesian_Coloured = Cartesian

d. Polar < Cartesian

e. Polar > Cartesian

f. Polar = Cartesian

g. Polar_Coloured < Cartesian

h. Polar_Coloured > Cartesian

i. Polar_Coloured = Cartesian

j. Polar < Cartesian_Coloured

k. Polar > Cartesian_Coloured

l. Polar = Cartesian_Coloured

l. Polar = Cartesian_Coloured

m. Polar_Coloured < Cartesian_Coloured

n. Polar_Coloured > Cartesian_Coloured

o. Polar_Coloured = Cartesian_Coloured

p. Polar_Coloured < Polar

q. Polar_Coloured > Polar

r. Polar_Coloured = Polar

Test Statistics[a]

	Cartesian_Coloured - Cartesian	Polar - Cartesian	Polar_Coloured - Cartesian	Polar - Cartesian_Coloured	Polar_Coloured - Cartesian_Coloured
Z	-5.593[b]	-3.149[c]	-5.615[b]	-6.881[c]	-.323[c]
Asymp. Sig. (2-tailed)	.000	.002	.000	.000	.746

Test Statistics[a]

	Polar_Coloured - Polar
Z	-6.665[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

```
NPAR TESTS
 /FRIEDMAN=Cartesian Cartesian_ColouredPolar Polar_Coloured
 /STATISTICS QUARTILES
 /MISSING LISTWISE.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:49:53
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for all tests are based on cases with no missing data for any variables used.

Syntax		NPAR TESTS
		  /FRIEDMAN=Cartesian Cartesian_Coloured Polar Polar_Coloured
		  /STATISTICS QUARTILES
		  /MISSING LISTWISE.

Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Descriptive Statistics

		Percentiles		
	N	25th	50th (Median)	75th
Cartesian	84	3.1383	4.8620	7.8960
Cartesian_Coloured	84	1.9065	2.6725	4.2582
Polar	84	4.0585	5.6025	10.0105
Polar_Coloured	84	2.1233	2.7305	3.9923

Friedman Test

Ranks

	Mean Rank
Cartesian	2.96
Cartesian_Coloured	1.85
Polar	3.22
Polar_Coloured	1.97

Test Statistics[a]

N	84
Chi-Square	72.265
df	3
Asymp. Sig.	.000

a. Friedman Test

```
 NPAR TESTS
  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_ColouredCartesian_Coloure
d Polar WITH Cartesian_ColouredPolar Polar_ColouredPolar Polar_ColouredPola
r_Coloured (PAIRED)
  /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		03-SEP-2018 16:50:00
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	84
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.

Syntax		NPAR TESTS
		  /WILCOXON=Cartesian Cartesian Cartesian Cartesian_Coloured Cartesian_Coloured Polar WITH Cartesian_Coloured Polar Polar_Coloured Polar Polar_Coloured Polar_Coloured (PAIRED)
		  /MISSING ANALYSIS.

Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01
	Number of Cases Allowed[a]	87381

a. Based on availability of workspace memory.

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Cartesian_Coloured - Cartesian	Negative Ranks	64[a]	46.89	3001.00
	Positive Ranks	19[b]	25.53	485.00
	Ties	1[c]		
	Total	84		
Polar - Cartesian	Negative Ranks	39[d]	39.42	1537.50
	Positive Ranks	45[e]	45.17	2032.50
	Ties	0[f]		
	Total	84		
Polar_Coloured - Cartesian	Negative Ranks	61[g]	49.47	3017.50
	Positive Ranks	23[h]	24.02	552.50
	Ties	0[i]		
	Total	84		
Polar - Cartesian_Coloured	Negative Ranks	11[j]	19.09	210.00
	Positive Ranks	73[k]	46.03	3360.00
	Ties	0[l]		
	Total	84		
Polar_Coloured - Cartesian_Coloured	Negative Ranks	41[m]	40.09	1643.50
	Positive Ranks	43[n]	44.80	1926.50
	Ties	0[o]		
	Total	84		
Polar_Coloured - Polar	Negative Ranks	68[p]	46.16	3139.00
	Positive Ranks	15[q]	23.13	347.00
	Ties	1[r]		
	Total	84		

a. Cartesian_Coloured < Cartesian

b. Cartesian_Coloured > Cartesian

c. Cartesian_Coloured = Cartesian

d. Polar < Cartesian

e. Polar > Cartesian

f. Polar = Cartesian

g. Polar_Coloured < Cartesian

h. Polar_Coloured > Cartesian

i. Polar_Coloured = Cartesian

j. Polar < Cartesian_Coloured

k. Polar > Cartesian_Coloured

l. Polar = Cartesian_Coloured

l. Polar = Cartesian_Coloured

m. Polar_Coloured < Cartesian_Coloured

n. Polar_Coloured > Cartesian_Coloured

o. Polar_Coloured = Cartesian_Coloured

p. Polar_Coloured < Polar

q. Polar_Coloured > Polar

r. Polar_Coloured = Polar

Test Statistics^a

	Cartesian_Coloured - Cartesian	Polar - Cartesian	Polar_Coloured - Cartesian	Polar - Cartesian_Coloured	Polar_Coloured - Cartesian_Coloured
Z	-5.712^b	-1.104^c	-5.497^b	-7.024^c	-.631^c
Asymp. Sig. (2-tailed)	.000	.270	.000	.000	.528

Test Statistics^a

	Polar_Coloured - Polar
Z	-6.338^b
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.