

***The GLM Procedure***

Class Level Information		
Class	Levels	Values
block	12	1 2 3 4 5 6 7 8 9 10 11 12
dishsoap	9	a b c d e f g h i

Number of Observations Read	36
Number of Observations Used	36

The GLM Procedure

Dependent Variable: dishes

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	19	1499.564815	78.924464	95.77	<.0001
Error	16	13.185185	0.824074		
Corrected Total	35	1512.750000			

R-Square	Coeff Var	Root MSE	dishes Mean
0.991284	4.675289	0.907785	19.41667

Source	DF	Type I SS	Mean Square	F Value	Pr > F
dishsoap	8	1489.500000	186.187500	225.94	<.0001
block	11	10.064815	0.914983	1.11	0.4127

Source	DF	Type II SS	Mean Square	F Value	Pr > F
dishsoap	8	1086.814815	135.851852	164.85	<.0001
block	11	10.064815	0.914983	1.11	0.4127

Source	DF	Type III SS	Mean Square	F Value	Pr > F
dishsoap	8	1086.814815	135.851852	164.85	<.0001
block	11	10.064815	0.914983	1.11	0.4127

Contrast	DF	Contrast SS	Mean Square	F Value	Pr > F
control vs others	1	345.0416667	345.0416667	418.70	<.0001
detergent I vs. detergent II	1	381.3379630	381.3379630	462.75	<.0001
linear in additive, detergent I	1	286.0166667	286.0166667	347.08	<.0001
nonlinear in additive, detergent I	2	12.9000000	6.4500000	7.83	0.0043
linear in additive, detergent II	1	61.3407407	61.3407407	74.44	<.0001
nonlinear in additive, detergent II	2	0.1777778	0.0888889	0.11	0.8984

***The GLM Procedure***

Level of dishsoap	N	dishes	
		Mean	Std Dev
a	4	19.7500000	0.50000000
b	4	16.7500000	0.50000000
c	4	13.2500000	1.70782513
d	4	6.5000000	0.57735027
e	4	25.5000000	1.00000000
f	4	23.2500000	0.50000000
g	4	20.7500000	0.50000000
h	4	19.2500000	0.50000000
i	4	29.7500000	1.50000000

**The GLM Procedure**  
**Least Squares Means**  
**Adjustment for Multiple Comparisons: Dunnett-Hsu**

dishsoap	dishes LSMEAN	Standard Error	H0:LSMEAN=0	H0:LSMean=Control
			Pr >  t	Pr < t
a	19.7500000	0.5167795	<.0001	<.0001
b	17.1944444	0.5167795	<.0001	<.0001
c	13.1944444	0.5167795	<.0001	<.0001
d	6.5277778	0.5167795	<.0001	<.0001
e	25.3055556	0.5167795	<.0001	0.0001
f	22.9722222	0.5167795	<.0001	<.0001
g	21.0833333	0.5167795	<.0001	<.0001
h	19.1944444	0.5167795	<.0001	<.0001
i	29.5277778	0.5167795	<.0001	

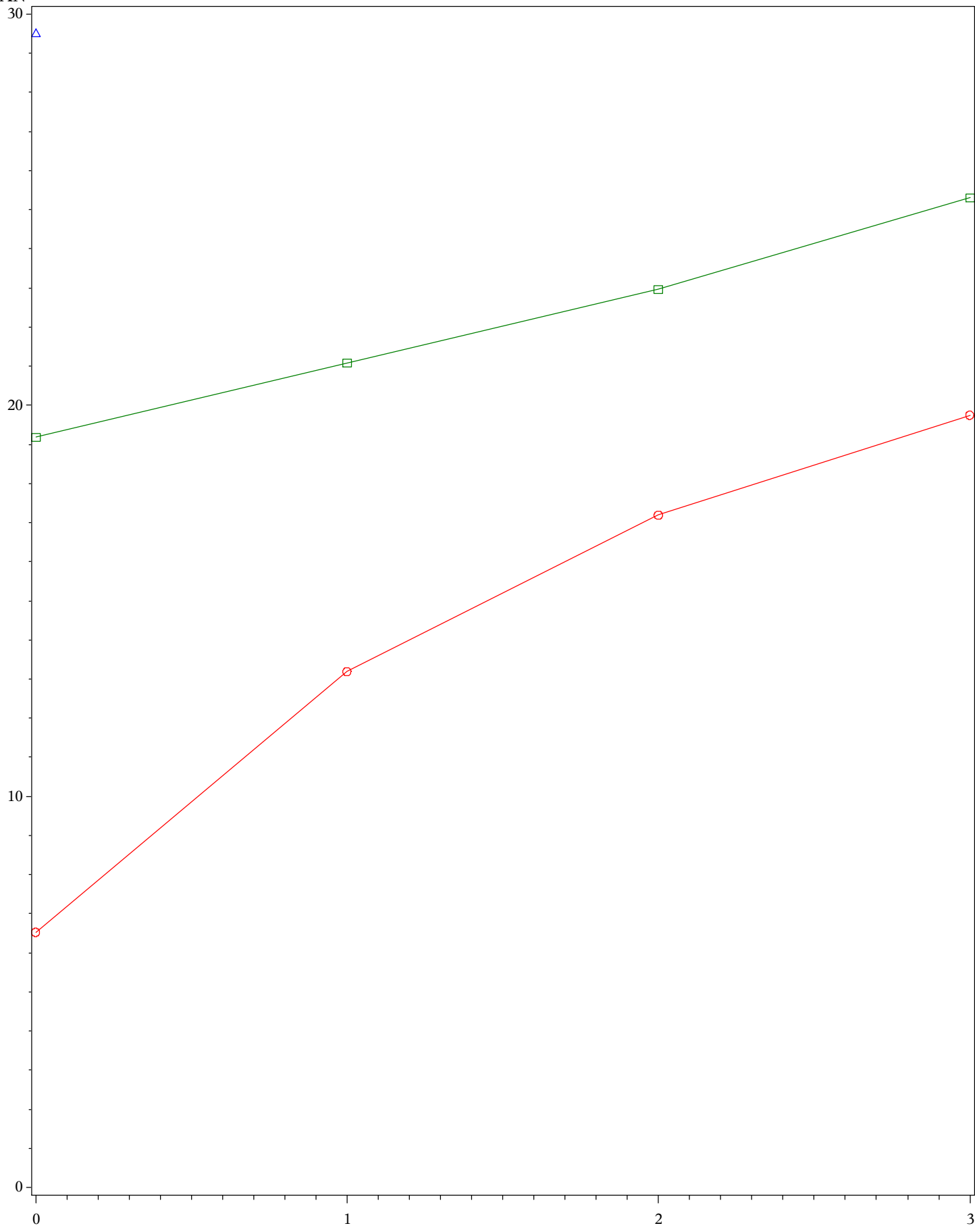
dishsoap	dishes LSMEAN	95% Confidence Limits	
		a	19.750000
b	17.194444	16.098921	18.289968
c	13.194444	12.098921	14.289968
d	6.527778	5.432254	7.623301
e	25.305556	24.210032	26.401079
f	22.972222	21.876699	24.067746
g	21.083333	19.987810	22.178857
h	19.194444	18.098921	20.289968
i	29.527778	28.432254	30.623301

Least Squares Means for Effect dishsoap				
i	j	Difference Between Means	Simultaneous 95% Confidence Limits for LSMean(i)-LSMean(j)	
1	9	-9.777778	-Infinity	-7.845338
2	9	-12.333333	-Infinity	-10.400894
3	9	-16.333333	-Infinity	-14.400894
4	9	-23.000000	-Infinity	-21.067560
5	9	-4.222222	-Infinity	-2.289783

**The GLM Procedure**  
**Least Squares Means**  
**Adjustment for Multiple Comparisons: Dunnett-Hsu**

Least Squares Means for Effect dishsoap				
i	j	Difference Between Means	Simultaneous 95% Confidence Limits for LSMean(i)-LSMean(j)	
6	9	-6.555556	-Infinity	-4.623116
7	9	-8.444444	-Infinity	-6.512005
8	9	-10.333333	-Infinity	-8.400894

LSMEAN



deterg    ○-○-○ 1    □-□-□ 2    △-△-△ 3

**The Mixed Procedure**

Model Information	
Data Set	WORK.DISHES
Dependent Variable	dishes
Covariance Structure	Variance Components
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Containment

Class Level Information		
Class	Levels	Values
block	12	1 2 3 4 5 6 7 8 9 10 11 12
dishsoap	9	a b c d e f g h i

Dimensions	
Covariance Parameters	2
Columns in X	10
Columns in Z	12
Subjects	1
Max Obs Per Subject	36

Number of Observations	
Number of Observations Read	36
Number of Observations Used	36
Number of Observations Not Used	0

Iteration History			
Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	85.06197323	
1	3	84.96488205	0.00000022
2	1	84.96487820	0.00000000

Convergence criteria met.
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**The Mixed Procedure**

Covariance Parameter Estimates	
Cov Parm	Estimate
block	0.05635
Residual	0.8044

Fit Statistics	
-2 Res Log Likelihood	85.0
AIC (smaller is better)	89.0
AICC (smaller is better)	89.5
BIC (smaller is better)	89.9

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
dishsoap	8	16	220.57	<.0001

Contrasts				
Label	Num DF	Den DF	F Value	Pr > F
control vs others	1	16	568.08	<.0001
detergent I vs. detergent II	1	16	624.85	<.0001
linear in additive, detergent I	1	16	446.07	<.0001
nonlinear in additive, detergent I	2	16	9.35	0.0020
linear in additive, detergent II	1	16	105.99	<.0001
nonlinear in additive, detergent II	2	16	0.42	0.6629

Least Squares Means									
Effect	dishsoap	Estimate	Standard Error	DF	t Value	Pr >  t	Alpha	Lower	Upper
dishsoap	a	19.7500	0.4625	16	42.70	<.0001	0.05	18.7696	20.7304
dishsoap	b	16.8105	0.4625	16	36.35	<.0001	0.05	15.8301	17.7910
dishsoap	c	13.2424	0.4625	16	28.63	<.0001	0.05	12.2620	14.2229
dishsoap	d	6.5038	0.4625	16	14.06	<.0001	0.05	5.5233	7.4842
dishsoap	e	25.4735	0.4625	16	55.08	<.0001	0.05	24.4931	26.4540



*The Mixed Procedure*

Least Squares Means									
Effect	dishsoap	Estimate	Standard Error	DF	t Value	Pr >  t	Alpha	Lower	Upper
dishsoap	f	23.2122	0.4625	16	50.19	<.0001	0.05	22.2317	24.1926
dishsoap	g	20.7954	0.4625	16	44.96	<.0001	0.05	19.8149	21.7758
dishsoap	h	19.2424	0.4625	16	41.61	<.0001	0.05	18.2620	20.2229
dishsoap	i	29.7197	0.4625	16	64.26	<.0001	0.05	28.7393	30.7002