

Компьютерная обработка результатов эксперимента

Имя	Дата изменения	Тип	Размер
1040	06.02.2021 10:38	Файл "DAT"	2 КБ
2142	06.02.2021 10:39	Файл "DAT"	2 КБ
3167	06.02.2021 10:40	Файл "DAT"	3 КБ
4219	06.02.2021 10:41	Файл "DAT"	4 КБ
5278	06.02.2021 10:41	Файл "DAT"	3 КБ
6286	06.02.2021 10:41	Файл "DAT"	2 КБ
7340	06.02.2021 10:41	Файл "DAT"	2 КБ
8348	06.02.2021 10:41	Файл "DAT"	4 КБ
9408	06.02.2021 10:41	Файл "DAT"	4 КБ
10477	06.02.2021 10:41	Файл "DAT"	3 КБ
11475	06.02.2021 10:41	Файл "DAT"	3 КБ
12536	06.02.2021 10:41	Файл "DAT"	2 КБ
13540	06.02.2021 10:41	Файл "DAT"	3 КБ
14597	06.02.2021 10:41	Файл "DAT"	3 КБ
15641	06.02.2021 10:41	Файл "DAT"	3 КБ
16660	06.02.2021 10:41	Файл "DAT"	3 КБ
17709	06.02.2021 10:41	Файл "DAT"	3 КБ
18728	06.02.2021 10:41	Файл "DAT"	3 КБ
19784	06.02.2021 10:41	Файл "DAT"	3 КБ
20780	06.02.2021 10:41	Файл "DAT"	3 КБ
21838	06.02.2021 10:41	Файл "DAT"	3 КБ
22840	06.02.2021 10:41	Файл "DAT"	3 КБ
23900	06.02.2021 10:41	Файл "DAT"	3 КБ
24936	06.02.2021 10:41	Файл "DAT"	3 КБ
25956	06.02.2021 10:53	Файл "DAT"	3 КБ

Контекстное меню для файла 25956.DAT:

- Открыть
- Изменить
- MediaInfo
- 7-Zip
- CRC SHA
- Edit with Notepad++
- Проверка с помощью Microsoft Security Essentials...
- Открыть с помощью...
- Общий доступ
- Восстановить прежнюю версию
- Отправить
- Вырезать
- Копировать
- Создать ярлык
- Удалить
- Переименовать
- Свойства

Экранная заставка: Заочкики 2 курс > данные для работы №2

Имя	Дата изменения	Тип	Размер
1040	06.02.2021 10:38	Файл "DAT"	2 КБ
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13540	06.02.2021 10:41	Файл "DAT"	3 КБ
14597	06.02.2021 10:43	Файл "DAT"	4 КБ
15641	06.02.2021 10:43	Файл "DAT"	4 КБ
16660	06.02.2021 10:44	Файл "DAT"	3 КБ
17709	06.02.2021 10:44	Файл "DAT"	3 КБ
18728	06.02.2021 10:44	Файл "DAT"	3 КБ
19784	06.02.2021 10:45	Файл "DAT"	2 КБ
20780	06.02.2021 10:45	Файл "DAT"	2 КБ
21838	06.02.2021 10:45	Файл "DAT"	2 КБ
22840	06.02.2021 10:46	Файл "DAT"	3 КБ
23900	06.02.2021 10:46	Файл "DAT"	3 КБ
24936	06.02.2021 10:47	Файл "DAT"	2 КБ
25956	06.02.2021 10:48	Файл "DAT"	3 КБ
14597	06.02.2021 10:48	Файл "DAT"	2 КБ
15641	06.02.2021 10:48	Файл "DAT"	2 КБ
16660	06.02.2021 10:48	Файл "DAT"	3 КБ
17709	06.02.2021 10:48	Файл "DAT"	2 КБ
18728	06.02.2021 10:49	Файл "DAT"	3 КБ
19784	06.02.2021 10:49	Файл "DAT"	2 КБ
20780	06.02.2021 10:49	Файл "DAT"	3 КБ
21838	06.02.2021 10:50	Файл "DAT"	2 КБ
22840	06.02.2021 10:51	Файл "DAT"	3 КБ
23900	06.02.2021 10:51	Файл "DAT"	3 КБ
24936	06.02.2021 10:52	Файл "DAT"	3 КБ
25956	06.02.2021 10:53	Файл "DAT"	3 КБ

Блокнот 25956 — Блокнот

Файл	Правка	Формат	Вид	Справка
1.589	1.093	.3709	1.764	
1.530	.9497	1.176	.4521	
.8646	2.087	1.406	.4622	
.5498	.7579	.8570	.4794	
1.527	1.270	.9826	.7281	
1.955	.5405	1.364	.3864	
.4131	1.788	.7060	.8397	
.7477	.7579	1.157	.4068	
.5619	.4209	2.262	.1069	
.9879	2.316	.4207	2.282	
2.340	.5801	2.066	.3069	
.6853	.9177	.8077	.5345	
.8586	.8704	1.706	.3566	

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.6853	.9177	.8077	.5345	
.8586	.8704	1.706	.3566	

Диалог "Заменить":

Что:

Чем:

Найти далее

Заменить

Заменить все

Отмена

С учетом регистра

Экранная заставка: данные для работы №2

Диалог "Выбор программы":

Выберите программу для открытия этого файла:

Файл: 25956.DAT

Рекомендуемые программы:

- Блокнот (Microsoft Corporation)

Другие программы:

Использовать выбранную программу для всех файлов такого типа

Обзор...

Если нужная программа отсутствует на этом компьютере, можно выполнить поиск программ в Интернете.

OK Отмена

Блокнот 25956 — Блокнот

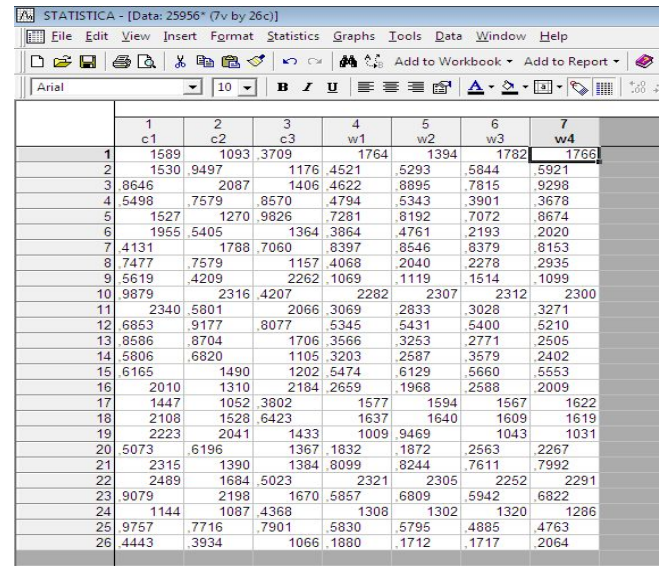
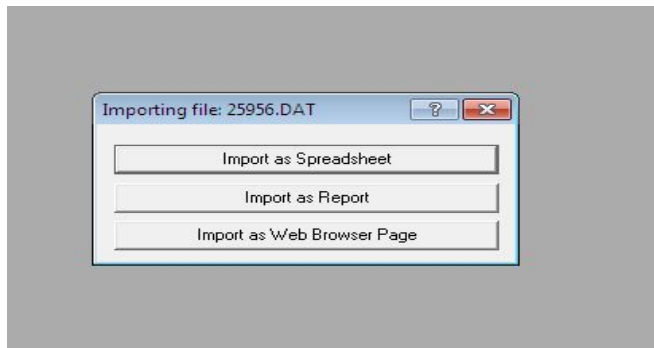
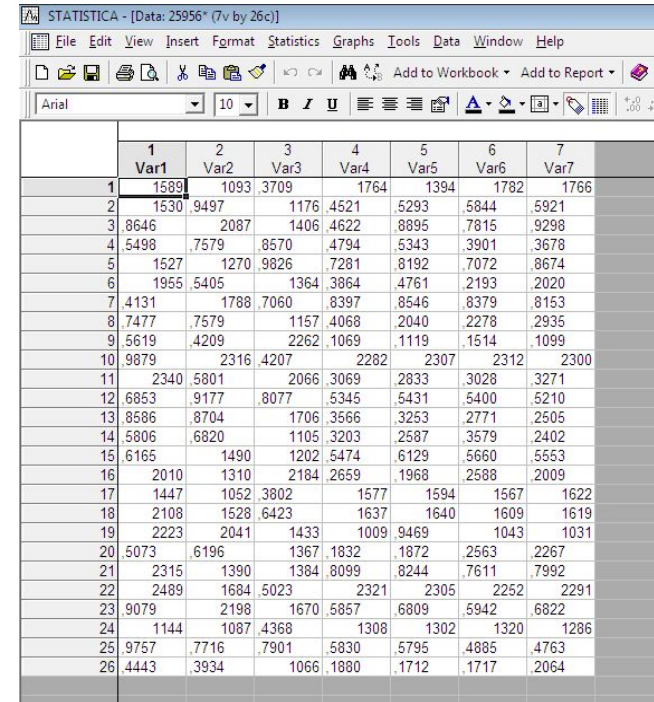
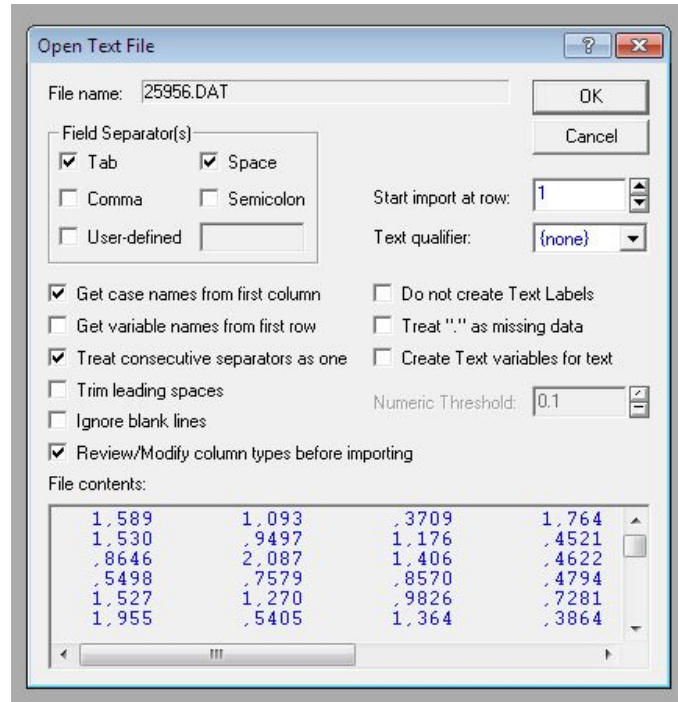
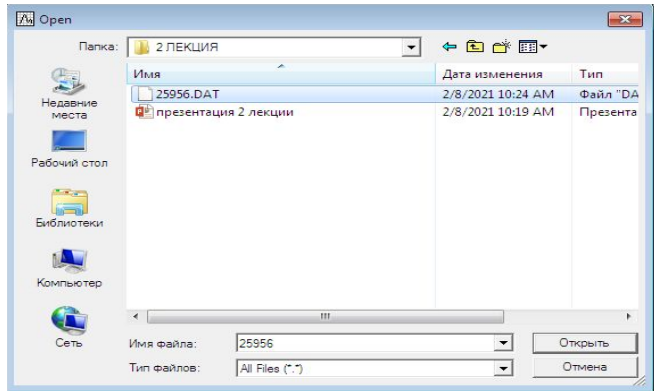
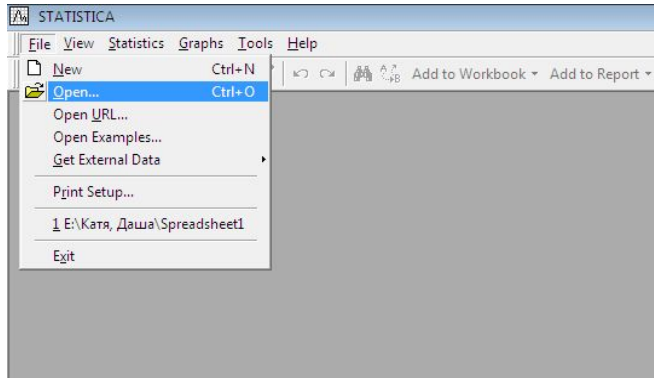
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.7477	.7579	1.157	.4068	
.5619	.4209	2.262	.1069	
.9879	2.316	.4207	2.282	
2.340	.5801	2.066	.3069	
.6853	.9177	.8077	.5345	
.8586	.8704	1.706	.3566	

Контекстное меню:

- Отменить (CTRL+Z)
- Вырезать (CTRL+X)
- Копировать (CTRL+C)
- Вставить (CTRL+V)
- Удалить (Del)
- Найти... (CTRL+F)
- Найти далее (F3)
- Заменить... (CTRL+H)
- Перейти... (CTRL+G)
- Выделить все (CTRL+A)
- Время и дата (F5)

Блокнот 25956 — Блокнот

Файл	Правка	Формат	Вид	Справка
1.589	1.093	.3709	1.764	
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Присвоение имен и расчет новых переменных

Для удобства работы с данными переменным следует присвоить имена в соответствии с таблицей результатов эксперимента: $C_1, C_2, \dots, C_n, W_1, W_2, \dots, W_n$. Кроме того, для перехода к линейной регрессии и для анализа результатов необходимо добавить в таблицу новые переменные и рассчитать значения переменных по формулам, указанным в скобках:

Y_1, Y_2, \dots, Y_L – логарифмы скорости реакции в параллельных опытах ($Y_i = \log(W_i); i=1 \dots L$);

Y – среднее значение логарифмов скорости: $= \text{mean}(Y_1:Y_L)$;

X_1, X_2, \dots, X_n – логарифмы концентраций: $X_i = \log(C_i); i=1 \dots n$;

S^2Y – дисперсия логарифмов скорости: $= (\text{stdev}(Y_1:Y_L))^2$;

G_{MAX}, S^2VOS – критерий Кохрена и дисперсия воспроизводимости ;

$S^2OST, FISH$ – остаточная дисперсия и критерий Фишера;

K – константа скорости химической реакции.

Расчёт переменных $G_{MAX}, S^2VOS, S^2OST, FISH, K$ будет выполнен позже. Подготовленную таблицу для расчета следует сохранить.

STATISTICA - [Data: 25956* (21v by 26c)]

File Edit View Insert Format Statistics Graphs Tools Data Window Help

10 Arial

	1 c1	2 c2	3 c3	4 w1	5 w2	6 w3	7 w4	8 x1	9 x2	10 x3	11 y1	12 y2	13 y3	14 y4	15 y	16 s2y	17 Gmax	18 S2vos	19 S2ost
1	1589	1093	3709	1764	1394	1782	1766												
2	1530	9497		1176	4521	5293	5844	5921											
3	8646	2087	1406	4622	8895	7815	9298												
4	5498	7579	8570	4794	5343	3901	3678												
5	1527	1270	9826	7281	8192	7072	8674												
6	1955	5405	1364	3864	4761	2193	2020												
7	4131	1788	7060	8397	8546	8379	8153												
8	7477	7579	1157	4068	2040	2278	2935												
9	5619	4209	2262	1069	1119	1514	1099												
10	9879	2316	4207	2282	2307	2312	2300												
11	2340	5801	2066	3069	2833	3028	3271												
12	6853	9177	8077	5345	5431	5400	5210												
13	8586	8704	1706	3566	3253	2771	2505												
14	5806	6820	1105	3203	2587	3579	2402												
15	6165	1490	1202	5474	6129	5660	5553												
16	2010	1310	2184	2659	1968	2588	2009												
17	1447	1052	3802	1577	1594	1567	1622												
18	2108	1528	6423	1637	1640	1609	1619												
19	2223	2041	1433	1009	9469	1043	1031												
20	5073	6196	1367	1832	1872	2563	2267												
21	2315	1390	1384	8099	8244	7611	7992												
22	2489	1684	5023	2321	2305	2252	2291												
23	9079	2198	1670	5857	6809	5942	6822												
24	1144	1087	4368	1308	1302	1320	1286												
25	9757	7716	7901	5830	5795	4885	4763												
26	4443	3934	1066	1880	1712	1717	2064												

Variable 8

Name: x1 Type: Double

Measurement Type: Auto Length: 8

Excluded Label Case State MD code: -9999

Display format: General

Long name (label or formula with Functions): =LOG(C1)

Labels: use any text. Formulas: use variable names or v1, v2, ..., v0 is case #.

STATISTICA - [Data: 25956* (21v by 26c)]

File Edit View Insert Format Statistics Graphs Tools Data Window Help

10 Arial

	1 c1	2 c2	3 c3	4 w1	5 w2	6 w3	7 w4	8 x1	9 x2	10 x3	11 y1	12 y2	13 y3	14 y4	15 y	16 s2y	17 Gmax	18 S2vos	19 S2ost	
1	1589	1093	3709	1764	1394	1782	1766	6.996681	4.615121	7.069874										
2	1530	9497		1176	4521	5293	5844	4.615121	7.069874	6.63439										
3	8646	2087	1406	4622	8895	7815	9298	4.624973	6.24973	4.624973										
4	5498	7579	8570	4794	5343	3901	3678	7.33106	7.146772	4.634729										
5	1527	1270	9826	7281	8192	7072	8674	4.578145	4.634729	7.218177										
6	1955	5405	1364	3864	4761	2193	2020	4.634729	7.488653	4.644391										
7	4131	1788	7060	8397	8546	8379	8153	4.644391	4.624973	7.053586										
8	7477	7579	1157	4068	2040	2278	2935	4.65396	4.644391	7.724005										
9	5619	4209	2262	1069	1119	1514	1099	4.663439	7.747597	4.65396										
10	9879	2316	4207	2282	2307	2312	2300	7.757906	4.65396	7.63337										
11	2340	5801	2066	3069	2833	3028	3271	4.672829	4.663439	4.663439										
12	6853	9177	8077	5345	5431	5400	5210	4.682131	4.672829	7.441907										
13	8586	8704	1706	3566	3253	2771	2505	4.691348	4.682131	7.007601										
14	5806	6820	1105	3203	2587	3579	2402	4.70048	7.306531	7.091742										
15	6165	1490	1202	5474	6129	5660	5553	7.60589	7.177782	7.688913										
16	2010	1310	2184	2659	1968	2588	2009	7.747165	7.237059	7.232733										
17	1447	1052	3802	1577	1594	1567	1622	7.819636	7.428927	4.691348										
18	2108	1528	6423	1637	1640	1609	1619	4.718499	7.695303	7.420679										
19	2223	2041	1433	1009	9469	1043	1031	7.042286	6.991177	4.70048										
20	5073	6196	1367	1832	1872	2563	2267	4.727388	4.70048	4.70953										
21	2315	1390	1384	8099	8244	7611	7992	4.736198	4.70953	6.971669										
22	2489	1684	5023	2321	2305	2252	2291													
23	9079	2198	1670	5857	6809	5942	6822													
24	1144	1087	4368	1308	1302	1320	1286													
25	9757	7716	7901	5830	5795	4885	4763													
26	4443	3934	1066	1880	1712	1717	2064													

Variable 11

Name: y1 Type: Double

Measurement Type: Auto Length: 8

Excluded Label Case State MD code: -9999

Display format: General

Long name (label or formula with Functions): =LOG(W1)

Labels: use any text. Formulas: use variable names or v1, v2, ..., v0 is case #.

	1 c1	2 c2	3 c3	4 w1	5 w2	6 w3	7 w4	8 x1	9 x2	10 x3	11 y1	12 y2	13 y3	14 y4	15 y	16 s2y	17 Gmax	18 S2vos	19 S2ost	20 Fish	21 K
1	1589	1093	3709	1764	1394	1782	1766	7.37086	6.996681	4.615121	7.475339	7.239933	7.485492	7.476472							
2	1530	9497	1176	4521	5293	5844	5921	7.333023	4.615121	7.069874	4.615121	4.615121	4.615121	4.615121							
3	8646	2087	1406	4622	8895	7815	9298	4.615121	7.643483	7.248504	4.624973	4.624973	4.624973	4.624973							
4	5498	7579	8570	4794	5343	3901	3678	4.624973	4.624973	4.624973	4.634729	4.634729	4.634729	4.634729							
5	1527	1270	9826	7281	8192	7072	8674	7.33106	7.146772	4.634729	4.644391	4.644391	4.644391	4.644391							
6	1955	5405	1364	3864	4761	2193	2020	7.578145	4.634729	7.218177	4.65396	4.65396	4.65396	4.65396							
7	4131	1788	7060	8397	8546	8379	8153	4.634729	7.488853	4.644391	4.663439	4.663439	4.663439	4.663439							
8	7477	7579	1157	4068	2040	2278	2935	4.644391	4.624973	7.053586	4.672829	4.672829	4.672829	4.672829							
9	5619	4209	2262	1069	1119	1514	1099	4.65396	4.644391	7.724005	4.682131	4.682131	4.682131	4.682131							
10	9879	2316	4207	2282	2307	2312	2300	4.663439	7.747597	4.65396	7.732131	4.65396	4.65396	4.65396							
11	2340	5801	2066	3069	2833	3028	3271	7.757906	4.65396	7.63337	4.691348	4.691348	4.691348	4.691348							
12	6853	9177	8077	5345	5431	5400	5210	4.672829	4.663439	4.663439	4.700760	4.700760	4.700760	4.700760							
13	8586	8704	1706	3566	3253	2771	2505	4.682131	4.672829	7.441907	4.718148	4.718148	4.718148	4.718148							
14	5806	6820	1105	3203	2587	3579	2402	4.691348	4.682131	7.007601	4.718148	4.718148	4.718148	4.718148							
15	6165	1490	1202	5474	6129	5660	5553	4.70048	7.306531	7.091742	4.727131	4.727131	4.727131	4.727131							
16	2010	1310	2184	2659	1968	2588	2009	7.60589	7.177782	7.688913	4.736131	4.736131	4.736131	4.736131							
17	1447	1052	3802	1577	1594	1567	1622	7.277248	6.958448	4.672829	7.36131	7.36131	7.36131	7.36131							
18	2108	1528	6423	1637	1640	1609	1619	7.653495	7.331715	4.682131	7.400760	7.400760	7.400760	7.400760							
19	2223	2041	1433	1009	9469	1043	1031	7.706613	7.621195	7.267525	6.916131	6.916131	6.916131	6.916131							
20	5073	6196	1367	1832	1872	2563	2267	4.70953	4.691348	7.220374	4.744913	4.744913	4.744913	4.744913							
21	2315	1390	1384	8099	8244	7611	7992	7.747165	7.237059	7.232733	4.753131	4.753131	4.753131	4.753131							
22	2489	1684	5023	2321	2305	2252	2291	7.819636	7.428927	4.691348	7.749131	7.749131	7.749131	7.749131							
23	9079	2198	1670	5857	6809	5942	6822	4.718499	7.695303	7.420579	4.762131	4.762131	4.762131	4.762131							
24	1144	1087	4368	1308	1302	1320	1286	7.042286	6.991177	4.70048	7.176131	7.176131	7.176131	7.176131							
25	9757	7716	7901	5830	5795	4885	4763	4.727388	4.70048	4.70953	4.770131	4.770131	4.770131	4.770131							
26	4443	3934	1066	1880	1712	1717	2064	4.736198	4.70953	6.971669	4.779131	4.779131	4.779131	4.779131							

Variable 15

Arial 10 B I U x₂ x²

Name: y Type: Double OK

Measurement Type: Auto Length: 8 Cancel

Excluded Label Case State MD code: -9999 << >>

Display format

- General
- Number
- Date
- Time
- Scientific
- Currency
- Percentage
- Fraction
- Custom

Long name (label or formula with Functions): Function guide

=MEAN(Y1:Y4)

Labels: use any text. Formulas: use variable names or v1, v2, ..., v0 is case #.
 Examples: (a) = mean(v1:v3, sqrt(v7), AGE) (b) = v1+v2; comment (after:)

STATISTICA - [Data: 25956* (21v by 26c)]

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Add to Workbook Add to Report

Arial 10 B I U

	1 c1	2 c2	3 c3	4 w1	5 w2	6 w3	7 w4	8 x1	9 x2	10 x3	11 y1	12 y2	13 y3	14 y4	15 y	16 s2y	17 Gmax	18 S2vos	19 S2ost	20 Fish	21 K
1	1.589	1.093	0.3709	1.764	1.394	1.782	1.766	7.37086	6.996681	4.615121	7.475339	7.239933	7.485492	7.476472	7.419309						
2	1.53	0.9497	1.176	0.4521	0.5293	0.5844	0.5921	7.333023	4.615121	7.069874	4.615121	4.615121	4.615121	4.615121	4.615121						
3	0.8646	2.087	1.406	0.4622	0.8895	0.7815	0.9298	4.615121	7.643483	7.248504	4.624973	4.624973	4.624973	4.624973	4.624973						
4	0.5498	0.7579	0.857	0.4794	0.5343	0.3901	0.3678	4.624973	4.624973	4.624973	4.634729	4.634729	4.634729	4.634729	4.634729						
5	1.527	1.27	0.9826	0.7281	0.8192	0.7072	0.8674	7.33106	7.146772	4.634729	4.644391	4.644391	4.644391	4.644391	4.644391						
6	1.955	0.5405	1.364	0.3864	0.4761	0.2193	0.202	7.578145	4.634729	7.218177	4.65396	4.65396	4.65396	4.65396	4.65396						
7	0.4131	1.788	0.706	0.8397	0.8546	0.8379	0.8153	4.634729	7.488853	4.644391	4.663439	4.663439	4.663439	4.663439	4.663439						
8	0.7477	0.7579	1.157	0.4068	0.204	0.2278	0.2935	4.644391	4.624973	7.053586	4.672829	4.672829	4.672829	4.672829	4.672829						
9	0.5619	0.4209	2.262	0.1069	0.1119	0.1514	0.1099	4.65396	4.644391	7.724005	4.682131	4.682131	4.682131	4.682131	4.682131						
10	0.9879	2.316	0.4207	2.282	2.307	2.312	2.3	4.663439	7.747597	4.65396	7.732131	7.732131	7.732131	7.732131	7.732131						
11	2.34	0.5801	2.066	0.3069	0.2833	0.3028	0.3271	7.757906	4.65396	7.63337	4.691348	4.691348	4.691348	4.691348	4.691348						
12	0.6853	0.9177	0.8077	0.5345	0.5431	0.54	0.521	4.672829	4.663439	4.663439	4.7007601	4.7007601	4.7007601	4.7007601	4.7007601						
13	0.8586	0.8704	1.706	0.3566	0.3253	0.2771	0.2505	4.682131	4.672829	7.441907	4.7007601	4.7007601	4.7007601	4.7007601	4.7007601						
14	0.5806	0.682	1.105	0.3203	0.2587	0.3579	0.2402	4.691348	4.682131	7.007601	4.718145	4.718145	4.718145	4.718145	4.718145						
15	0.6165	1.49	1.202	0.5474	0.6129	0.566	0.5553	4.70048	7.306531	7.091742	4.727248	4.727248	4.727248	4.727248	4.727248						
16	2.01	1.31	2.184	0.2659	0.1968	0.2588	0.2009	7.60589	7.177782	7.688913	4.736131	4.736131	4.736131	4.736131	4.736131						
17	1.447	1.052	0.3802	1.577	1.594	1.567	1.622	7.277248	6.958448	4.672829	7.361348	7.361348	7.361348	7.361348	7.361348						
18	2.108	1.528	0.6423	1.637	1.64	1.609	1.619	7.653495	7.331715	4.682131	7.4007601	7.4007601	7.4007601	7.4007601	7.4007601						
19	2.223	2.041	1.433	1.009	0.9469	1.043	1.031	7.706613	7.621195	7.267525	6.916131	6.916131	6.916131	6.916131	6.916131						
20	0.5073	0.6196	1.367	0.1832	0.1872	0.2563	0.2267	4.70953	4.691348	7.220374	4.744391	4.744391	4.744391	4.744391	4.744391						
21	2.315	1.39	1.384	0.8099	0.8244	0.7611	0.7992	7.747165	7.237059	7.232733	4.751348	4.751348	4.751348	4.751348	4.751348						
22	2.489	1.684	0.5023	2.321	2.305	2.252	2.291	7.819636	7.428927	4.691348	7.749131	7.749131	7.749131	7.749131	7.749131						
23	0.9079	2.198	1.67	0.5857	0.6809	0.5942	0.6822	4.718499	7.695303	7.420579	4.762131	4.762131	4.762131	4.762131	4.762131						
24	1.144	1.087	0.4368	1.308	1.302	1.32	1.286	7.042286	6.991177	4.70048	7.176131	7.176131	7.176131	7.176131	7.176131						
25	0.9757	0.7716	0.7901	0.583	0.5795	0.4885	0.4763	4.727388	4.70048	4.70953	4.770131	4.770131	4.770131	4.770131	4.770131						
26	0.4443	0.3934	1.066	0.188	0.1712	0.1717	0.2064	4.736198	4.70953	6.971669	4.779131	4.779131	4.779131	4.779131	4.779131						

Variable 16

Name: s2y Type: Double

Measurement Type: Auto Length: 8 MD code: -9999

Display format: General

Long name (label or formula with Functions): Function guide

$$=(STDEV(Y1:Y4))^2$$

Labels: use any text. Formulas: use variable names or v1, v2, ..., v0 is case #.
Examples: (a) = mean(v1:v3, sqrt(v7), AGE) (b) = v1+v2; comment (after;)

STATISTICA - [Data: 25956* (21v by 26c)]

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Resume... Ctrl+R

ByGroup Analysis

Basic Statistics/Tables

	1 c1	2 c2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
																s2y	Gmax	S2vos	S2ost	Fish	K		
1	1589	1093																					
2	1530	9497																					
3	8646	2087																					
4	5498	7579																					
5	1527	1270																					
6	1955	5405																					
7	4131	1788																					
8	7477	7579																					
9	5619	4209																					
10	9879	2316																					
11	2340	5801																					
12	6853	9177																					
13	8586	8704																					
14	5806	6820																					
15	6165	1490																					
16	2010	1310																					
17	1447	1052																					
18	2108	1528	6423	1637	1640	1609																	
19	2223	2041	1433	1009	9469	1043																	
20	5073	6196	1367	1832	1872	2563	2267	4	70953	4	691348	7	220374	4	744932	6	949856	6	938284	6	387447		
21	2315	1390	1384	8099	8244	7611	7992	7	747165	7	237059	7	232733	4	75359	4	75359	4	75359	4	755736		
22	2489	1684	5023	2321	2305	2252	2291	7	819636	7	428927	4	691348	7	749753	7	742836	7	719574	7	736744	7	732722
23	9079	2198	1670	5857	6809	5942	6822	4	718499	7	695303	7	420579	4	762174	4	770685	4	762174	4	762174	4	764302
24	1144	1087	4368	1308	1302	1320	1286	7	042286	6	991177	4	700448	7	176255	7	171657	7	185387	7	159292	7	173148
25	9757	7716	7901	5830	5795	4885	4763	4	727388	4	700448	4	70953	4	770685	4	779123	4	770685	4	770685	4	772794
26	4443	3934	1066	1880	1712	1717	2064	4	736198	4	70953	6	971669	4	779123	4	787492	4	779123	4	779123	4	781216

Предварительная обработка результатов эксперимента

в меню команды **Statistics** выбираете **Basic Statistics / Tables**;

в окне **Basic Statistics and Tables** выбираете **Descriptive Statistics**;

в окне **Descriptive Statistics** статистики щёлкаете **Variables** и из списка переменных выбрать **S2Y, OK**;

выбираете закладку **Advanced**, в списках отмечаете **Mean, Sum, Minimum & Maximum**; снимаете флажки с **Valid N** и **Standard Deviation**; щёлкаете **Summary**;

STATISTICA - [Data: 25956* (21v by 26c)]

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Add to Workbook Add to Report

Basic Statistics and Tables: 25956

	1 c1	2 c2	3 c3	4 w1	5 w2	6 w3	7 w4	8 x1	9 x2	10 x3	11 y1	12 y2	13 y3	14 y4	15 y	16 s2y	17 Gmax	18 S2vos	19 S2ost	20 Fish	21 K		
1	1589	1093	3709	1764	1394	1782	1766	7	37086	6	996681	4	615121	7	475339	7	239933	7	485492	7	476472	7	419309
2	1530	9497	1176	4521	5293	5844	5921	7	333023	4	615121	7	069874	4	615121	4	615121	4	615121	4	615121	4	615121
3	8646	2087	1406	4622	8895	7815	9298	4	615121	7	643483	7	248504	4	624973	4	624973	4	624973	4	624973	4	624973
4	5498	7579	8570	4794	5343	3901	3678	4	624973	4	624973	4	624973	4	624973	4	634729	4	634729	4	634729	4	634729
5	1527	1270	9826	7281	8192	7072	8674	7	33106	7	146772	4	634729	4	644391	4	644391	4	644391	4	644391	4	644391
6	1955	5405	1364	3864	4761	2193	2020	7	578145	4	634729	7	488583	4	65396	4	65396	4	65396	4	65396	4	65396
7	4131	1788	7060	8397	8546	8379	8153	4	634729	7	488583	4	644391	4	663439	4	663439	4	663439	4	663439	4	663439
8	7477	7579	1157	4068	2040	2278	2935	4	644391	4	624973	7	053586	4	672829	4	672829	4	672829	4	672829	4	672829
9	5619	4209	2262	1069	1119	1514	1099	4	65396	4	644391	7	724005	4	682131	4	682131	4	682131	4	682131	4	682131
10	9879	2316	4207	2282	2307	2312	2300	4	663439	7	747597	4	65396	7	732808	7	743703	7	745868	7	740664	7	740761
11	2340	5801	2066	3069	2833	3028	3271	7	757906	4	65396	7	63337	4	691348	4	691348	4	691348	4	691348	4	691348
12	6853	9177	8077	5345	5431	5400	5210	4	672829	4	663439	4	663439	4	700448	4	700448	4	700448	4	700448	4	700448
13	8586	8704	1706	3566	3253	2771	2505	4	682131	4	672829	7	441907	4	70953	4	70953	4	70953	4	70953	4	70953
14	5806	6820	1105	3203	2587	3579	2402	4	691348	4	682131	7	007601	4	718499	4	718499	4	718499	4	718499	4	718499
15	6165	1490	1202	5474	6129	5660	5553	4	700448	7	306531	7	091742	4	727388	4	727388	4	727388	4	727388	4	727388
16	2010	1310	2184	2659	1968	2588	2009	7	60589	7	177782	6	688913	4	736198	4	736198	4	736198	4	736198	4	736198
17	1447	1052	3802	1577	1594	1567	1622	7	2727248	6	958448	4	672829	7	36328	7	374	7	374	7	374	7	374
18	2108	1528	6423	1637	1640	1609	1619	7	653495	7	331715	4	682131	7	400621	7	402	7	402	7	402	7	402
19	2223	2041	1433	1009	9469	1043	1031	7	706613	7	621195	7	267525	6	916715	4	744	4	744	4	744	4	744
20	5073	6196	1367	1832	1872	2563	2267	4	70953	4	691348	7	220374	4	744932	4	75	4	75	4	75	4	75
21	2315	1390	1384	8099	8244	7611	7992	7	747165	7	237059	7	232733	4	75359	4	762	4	762	4	762	4	762
22	2489	1684	5023	2321	2305	2252	2291	7	819636	7	428927	4	691348	7	749753	7	742	7	742	7	742	7	742
23	9079	2198	1670	5857	6809	5942	6822	4	718499	7	695303	7	420579	4	762174	4	770	4	770	4	770	4	770
24	1144	1087	4368	1308	1302	1320	1286	7	042286	6	991177	4	700448	7	176255	7	171	7	171	7	171	7	171
25	9757	7716	7901	5830	5795	4885	4763	4	727388	4	700448	4	70953	4	770685	4	779	4	779	4	779	4	779
26	4443	3934	1066	1880	1712	1717	2064	4	736198	4	70953	6	971669	4	779123	4	787	4	787	4	787	4	787

STATISTICA - [Data: 25956* (21v by 26c)]

File Edit View Insert Format Statistics Graphs Tools Data Window Help

10 Arial

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	c1	c2	c3	w1	w2	w3	w4	x1	x2	x3	y1	y2	y3	y4	y	s2y	Gmax	S2vos	S2ost	
1	1589	1093	3709	1176	4521	5293	5844	5921	7.330023	4.615121	7.069874	4.615121	4.615121	4.615121	4.615121					
2	1530	9497																		
3	8646	2087	1406	4622	8895	7815	9298	4.615121	7.643483	7.248504	4.624973	4.624973	4.624973	4.624973	4.624973					
4	5498	7579	8570	4794	5343	3901	3678	4.624973	4.624973	4.624973	4.634729	4.634729	4.634729	4.634729	4.634729					
5	1527	1270	9826	7281	8192	7072	8674	7.33106	7.146772	4.634729	4.644391	4.644391	4.644391	4.644391	4.644391					
6	1955	5405	1364	3864	4761	2193	2020	7.578145	4.634729	7.218177	4.65396	4.65396	4.65396	4.65396	4.65396					
7	4131	1788	7060	8397	8546	8379	8153	4.634729	7.488853	4.644391	4.663439	4.663439	4.663439	4.663439	4.663439					
8	7477	7579	1157	4068	2040	2278	2935	4.644391	4.624973	7.053586	4.672829	4.672829	4.672829	4.672829	4.672829					
9	5619	4209	2262	1069	1119	1514	1099	4.65396	4.644391	7.724005	4.682131	4.682131	4.682131	4.682131	4.682131					
10	9879	2316	4207	2282	2307	2312	2300	4.663439	7.747597	4.65396	7.732808	7.743703	7.745868	7.740664	7.740761					
11	2340	5801	2066	3069	2833	3028	3271	7.757906	4.65396	7.63337	4.691348	4.691348	4.691348	4.691348	4.691348					
12	6853	9177	8077	5345	5431	5400	5210	4.672829	4.663439	4.663439	4.663439	4.663439	4.663439	4.663439	4.663439					
13	8586	8704	1706	3566	3253	2771	2505	4.682131	4.672829	7.441907										
14	5806	6820	1105	3203	2587	3579	2402	4.691348	4.682131	7.007601										
15	6165	1490	1202	5474	6129	5660	5553	4.70048	7.306531	7.091742										
16	2010	1310	2184	2659	1968	2588	2009	7.60589	7.177782	7.688913										
17	1447	1052	3802	1577	1594	1567	1622	7.272248	6.958448	4.672829										
18	2108	1528	6423	1637	1640	1609	1619	7.653495	7.331715	4.682131										
19	2223	2041	1433	1009	9469	1043	1031	7.706613	7.621195	7.267525										
20	5073	6196	1367	1832	1872	2563	2267	4.70953	4.691348	7.220374										
21	2315	1390	1384	8099	8244	7611	7992	7.747165	7.237059	7.232733										
22	2489	1684	5023	2321	2305	2252	2291	7.819636	7.428927	4.691348										
23	9079	2198	1670	5857	6809	5942	6822	4.718499	7.695303	7.420579										
24	1144	1087	4368	1308	1302	1320	1286	7.042286	6.991177	4.70048										
25	9757	7716	7901	5830	5795	4885	4763	4.727388	4.70048	4.70953										
26	4443	3934	1066	1880	1712	1717	2064	4.736198	4.70953	6.971669										

Descriptive Statistics: 25956

Variables: s2y

Quick: Advanced | Normality | Prob. & Scatterplots | Categ. plots | Options

Summary: Descriptive statistics

Frequency tables | Histograms

Box & whisker plot for all variables

Location, valid N: Valid N, Mean, Sum, Median, Mode, Geom. mean, Harm. mean

Variation, moments: Standard Deviation, Variance, Std. er. of mean, Std. er., Skewness, Kurtosis, Std. er., Kurtosis

Percentiles, ranges: Minimum & maximum, Lower & upper quartiles, Percentile boundaries, Conf. limits for means, Range, Skewness, Std. er., Skewness, Kurtosis

Select all stats | Reset | Save settings as default

MD deletion: Casewise, Pairwise

STATISTICA - [Data: 25956* (21v by 26c)]

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10 Arial

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	c1	c2	c3	w1	w2	w3	w4	x1	x2	x3	y1	y2	y3	y4	y	s2y	Gmax	S2vos	S2ost	
1	1589	1093	3709	1176	4521	5293	5844	5921	7.330023	4.615121	7.069874	4.615121	4.615121	4.615121	4.615121					
2	1530	9497																		
3	8646	2087	1406	4622	8895	7815	9298	4.615121	7.643483	7.248504	4.624973	4.624973	4.624973	4.624973	4.624973					
4	5498	7579	8570	4794	5343	3901	3678	4.624973	4.624973	4.624973	4.634729	4.634729	4.634729	4.634729	4.634729					
5	1527	1270	9826	7281	8192	7072	8674	7.33106	7.146772	4.634729	4.644391	4.644391	4.644391	4.644391	4.644391					
6	1955	5405	1364	3864	4761	2193	2020	7.578145	4.634729	7.218177	4.65396	4.65396	4.65396	4.65396	4.65396					
7	4131	1788	7060	8397	8546	8379	8153	4.634729	7.488853	4.644391	4.663439	4.663439	4.663439	4.663439	4.663439					
8	7477	7579	1157	4068	2040	2278	2935	4.644391	4.624973	7.053586	4.672829	4.672829	4.672829	4.672829	4.672829					
9	5619	4209	2262	1069	1119	1514	1099	4.65396	4.644391	7.724005	4.682131	4.682131	4.682131	4.682131	4.682131					
10	9879	2316	4207	2282	2307	2312	2300	4.663439	7.747597	4.65396	7.732808	7.743703	7.745868	7.740664	7.740761					
11	2340	5801	2066	3069	2833	3028	3271	7.757906	4.65396	7.63337	4.691348	4.691348	4.691348	4.691348	4.691348					
12	6853	9177	8077	5345	5431	5400	5210	4.672829	4.663439	4.663439	4.663439	4.663439	4.663439	4.663439	4.663439					
13	8586	8704	1706	3566	3253	2771	2505	4.682131	4.672829	7.441907										
14	5806	6820	1105	3203	2587	3579	2402	4.691348	4.682131	7.007601										
15	6165	1490	1202	5474	6129	5660	5553	4.70048	7.306531	7.091742										
16	2010	1310	2184	2659	1968	2588	2009	7.60589	7.177782	7.688913										
17	1447	1052	3802	1577	1594	1567	1622	7.272248	6.958448	4.672829										
18	2108	1528	6423	1637	1640	1609	1619	7.653495	7.331715	4.682131										
19	2223	2041	1433	1009	9469	1043	1031	7.706613	7.621195	7.267525										
20	5073	6196	1367	1832	1872	2563	2267	4.70953	4.691348	7.220374										
21	2315	1390	1384	8099	8244	7611	7992	7.747165	7.237059	7.232733										
22	2489	1684	5023	2321	2305	2252	2291	7.819636	7.428927	4.691348										
23	9079	2198	1670	5857	6809	5942	6822	4.718499	7.695303	7.420579										
24	1144	1087	4368	1308	1302	1320	1286	7.042286	6.991177	4.70048										
25	9757	7716	7901	5830	5795	4885	4763	4.727388	4.70048	4.70953										
26	4443	3934	1066	1880	1712	1717	2064	4.736198	4.70953	6.971669										

Descriptive Statistics: 25956

Variables: s2y

Quick: Advanced | Normality | Prob. & Scatterplots | Categ. plots | Options

Summary: Descriptive statistics

Frequency tables | Histograms

Box & whisker plot for all variables

Location, valid N: Valid N, Mean, Sum, Median, Mode, Geom. mean, Harm. mean

Variation, moments: Standard Deviation, Variance, Std. er. of mean, Std. er., Skewness, Kurtosis, Std. er., Kurtosis

Percentiles, ranges: Minimum & maximum, Lower & upper quartiles, Percentile boundaries, Conf. limits for means, Range, Skewness, Std. er., Skewness, Kurtosis

Select all stats | Reset | Save settings as default

MD deletion: Casewise, Pairwise

Select variables for the analysis

1-c1 13-v3
2-c2 14-v4
3-c3 15-v
4-w1 16-s2y
5-w2 17-Gmax
6-w3 18-S2vos
7-w4 19-S2ost
8-x1 20-Fish
9-x2 21-K
10-x3
11-y1
12-y2
13-y3
14-y4
15-y
16-s2y
17-Gmax
18-S2vos
19-S2ost
20-Fish
21-K

Use the 'Show appropriate variables only' option to pre-screen variables lists and show categorical and continuous variables. Press F1 for more information.

STATISTICA - [Data: 25956* (21v by 26c)]

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10 Arial

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
	c1	c2	c3	w1	w2	w3	w4	x1	x2	x3	y1	y2	y3	y4	y	s2y	Gmax	S2vos	S2ost	Fish	K	
1	1589	1093	3709	1176	4521	5293	5844	5921	7.330023	4.615121	7.069874	4.615121	4.615121	4.615121	4.615121							
2	1530	9497																				
3	8646	2087	1406	4622	8895	7815	9298	4.615121	7.643483	7.248504	4.624973	4.624973	4.624973	4.624973	4.624973							
4	5498	7579	8570	4794	5343	3901	3678	4.624973	4.624973	4.624973	4.634729	4.634729	4.634729	4.634729	4.634729							
5	1527	1270	9826	7281	8192	7072	8674	7.33106	7.146772	4.634729	4.644391	4.644391	4.644391	4.644391	4.644391							
6	1955	5405	1364	3864	4761	2193	2020	7.578145	4.634729	7.218177	4.65396	4.65396	4.65396	4.65396	4.65396							
7	4131	1788	7060	8397	8546	8379	8153	4.634729	7.488853	4.644391	4.663439	4.663439	4.663439	4.663439	4.663439							
8	7477	7579	1157	4068	2040	2278	2935	4.644391	4.624973	7.053586	4.672829	4.672829	4.672829	4.672829	4.672829							

Descriptive Statistics (25956)				
Variable	Mean	Sum	Minimum	Maximum
s2y	0.046703	1.214275	0.00	1.199235

Оценка качества выполненного эксперимента
 Расчет дисперсий и их анализ был выполнен в статистическом модуле Descriptive Statistics.
 Полученные результаты:

	13 y3	14 y4	15 y	16 s2y	17 Gmax	18 S2vos	19 S2ost
1	7.485492	7.476472	7.419309	0.014321			
2	4.615121	4.615121	4.615121	0			
3	4.624973	4.624973	4.624973	0			
4	4.634729	4.634729	4.634729	0			
5	4.644391	4.644391	4.644391	0			
6	4.65396	4.65396	4.65396	0			
7	4.663439	4.663439	4.663439	0			
8	4.672829	4.672829	4.672829	0			
9	4.682131	4.682131	4.682131	0			
10	7.745988	7.740964	7.740761	0.000033			
11	4.691348	4.691348	4.691348	0			
12	4.70048	4.70048	4.70048	0			
13	4.70953	4.70953	4.70953	0			
14	4.718499	4.718499	4.718499	0			
15	4.727388	4.727388	4.727388	0			
16	4.736198	4.736198	4.736198	0			
17	7.356918	7.391415	7.371404	0.000228			
18	7.383368	7.389564	7.394001	0.000083			
19	6.949856	6.938284	6.937447	1.199235			
20	4.744932	4.744932	4.747097	0.000019			
21	4.75359	4.75359	4.755736	0.000018			
22	7.719574	7.736744	7.737227	0.000167			
23	4.762174	4.762174	4.764302	0.000018			
24	7.185387	7.185292	7.173148	0.000118			
25	4.770685	4.770685	4.772794	0.000018			
26	4.779123	4.779123	4.781216	0.000018			

Расчетный критерий Кохрена:

$$G_{max} = S_{y_{max}}^2 / \sum_{i=1}^m S_{y_i}^2$$

STATISTICA - [Data: 25956* (21v by 26c)]

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Arial 10 B I U +.00 -.00 Vars Cases

	1 c1	2 c2	3 c3	4 w1	5 w2	6 w3	7 w4	8 x1	9 x2	10 x3	11 y1	12 y2	13 y3	14 y4	15 y	16 s2y	17 Gmax	18 S2vos	19 S2ost	20 Fish	21 K
1	1.589	1.093	0.3709	1.764	1.394	1.782	1.766	7.37086	6.996681	4.615121	7.475339	7.239933	7.485492	7.476472	7.419309	0.014321	0.987614				
2	1.53	0.9497	1.176	0.4521	0.5293	0.5844	0.5921	7.333023	4.615121	7.069874	4.615121	4.615121	4.615121	4.615121	4.615121	0	0.987614				
3	0.8646	2.087	1.406	0.4622	0.8895	0.7815	0.9298	4.615121	7.643483	7.248504	4.624973	4.624973	4.624973	4.624973	4.624973	0	0.987614				
4	0.5498	0.7579	0.857	0.4794	0.5343	0.3901	0.3678	4.624973	4.624973	4.624973	4.634729	4.634729	4.634729	4.634729	4.634729	0	0.987614				
5	1.527	1.27	0.9826	0.7281	0.8192	0.7072	0.8674	7.33106	7.146772	4.634729	4.644391	4.644391	4.644391	4.644391	4.644391	0	0.987614				
6	1.955	0.5405	1.364	0.3864	0.4761	0.2193	0.202	7.578145	4.634729	7.218177	4.65396	4.65396	4.65396	4.65396	4.65396	0	0.987614				
7	0.4131	1.788	0.706	0.8397	0.8546	0.8379	0.8153	4.634729	7.488853	4.644391	4.663439	4.663439	4.663439	4.663439	4.663439	0	0.987614				
8	0.7477	0.7579	1.157	0.4068	0.204	0.2278	0.2935	4.644391	4.624973	7.053586	4.672829	4.672829	4.672829	4.672829	4.672829	0	0.987614				
9	0.5619	0.4209	2.262	0.1069	0.1119	0.1514	0.1099	4.65396	4.644391	7.724005	4.682131	4.682131	4.682131	4.682131	4.682131	0	0.987614				
10	0.9879	2.316	0.4207	2.282	2.307	2.312	2.3	4.663439	7.747597	4.65396	7.732808	7.743703	7.745868	7.740664	7.740761	0.000033	0.987614				
11	2.34	0.5801	2.066	0.3069	0.2833	0.3028	0.3271	7.757906	4.65396	7.63337	4.691348	4.691348	4.691348	4.691348	4.691348	0	0.987614				
12	0.6853	0.9177	0.8077	0.5345	0.5431	0.54	0.521	4.672829	4.663439	4.663439	4.70048	4.70048	4.70048	4.70048	4.70048	0	0.987614				
13	0.8586	0.8704	1.706	0.3566	0.3253	0.2771	0.2505	4.682131	4.672829	7.441907	4.70953	4.70953	4.70953	4.70953	4.70953	0	0.987614				
14	0.5806	0.682	1.105	0.3203	0.2587	0.3579	0.2402	4.691348	4.682131	7.007601	4.718499	4.718499	4.718499	4.718499	4.718499	0	0.987614				
15	0.6165	1.49	1.202	0.5474	0.6129	0.566	0.5553	4.70048	7.306531	7.091742	4.727388	4.727388	4.727388	4.727388	4.727388	0	0.987614				
16	2.01	1.31	2.184	0.2659	0.1968	0.2588	0.2009	7.60589	7.177782	7.688913	4.736198	4.736198	4.736198	4.736198	4.736198	0	0.987614				
17	1.447	1.052	0.3802	1.577	1.594	1.567	1.622	7.277248	6.958448	4.672829	7.36328	7.374002	7.356918	7.391415	7.371404	0.000228	0.987614				
18	2.108	1.528	0.6423	1.637	1.64	1.609	1.619	7.653495	7.331715	4.682131	7.400621	7.402452	7.383368	7.389564	7.394001	0.000083	0.987614				
19	2.223	2.041	1.433	1.009	0.9469	1.043	1.031	7.706613	7.621195	7.267525	6.916715	4.744932	6.949856	6.938284	6.387447	1.199235	0.987614				
20	0.5073	0.6196	1.367	0.1832	0.1872	0.2563	0.2267	4.70953	4.691348	7.220374	4.744932	4.75359	4.744932	4.744932	4.747097	0.000019	0.987614				
21	2.315	1.39	1.384	0.8099	0.8244	0.7611	0.7992	7.747165	7.237059	7.232733	4.75359	4.762174	4.75359	4.75359	4.755736	0.000018	0.987614				
22	2.489	1.684	0.5023	2.321	2.305	2.252	2.291	7.819636	7.428927	4.691348	7.749753	7.742836	7.719574	7.736744	7.737227	0.000167	0.987614				
23	0.9079	2.198	1.67	0.5857	0.6809	0.5942	0.6822	4.718499	7.695303	7.420579	4.762174	4.770685	4.762174	4.762174	4.764302	0.000018	0.987614				
24	1.144	1.087	0.4368	1.308	1.302	1.32	1.286	7.042286	6.991177	4.70048	7.176255	7.171657	7.185387	7.159292	7.173148	0.000118	0.987614				
25	0.9757	0.7716	0.7901	0.583	0.5795	0.4885	0.4763	4.727388	4.70048	4.70953	4.770685	4.779123	4.770685	4.770685	4.772794	0.000018	0.987614				
26	0.4443	0.3934	1.066	0.188	0.1712	0.1717	0.2064	4.736198	4.70953	6.971669	4.779123	4.787492	4.779123	4.779123	4.781216	0.000018	0.987614				

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Arial 10 B I U

Data: 25956 (21v by 26c)

	1 c1	2 c2	3 c3	4 w1	5 w2	6 w3	7 w4	8 x1	9 x2	10 x3	11 y1	12 y2	13 y3	14 y4	15 y	16 s2y	17 Gmax	18 S2vos	19 S2ost	20 Fish	21 K
1	1,589	1,093	0,3709	1,764	1,394	1,782	1,766	7,37086	6,996681	4,615121	7,475339	7,239933	7,485492	7,476472	7,419309	0,014321	0,987614				
2	1,53	0,9497	1,176	0,4521	0,5293	0,5844	0,5921	7,333023	4,615121	7,069											
3	0,8646	2,087	1,406	0,4622	0,8895	0,7815	0,9298	4,615121	7,643483	7,248											
4	0,5498	0,7579	0,857	0,4794	0,5343	0,3901	0,3678	4,624973	4,624973	4,624											
5	1,527	1,27	0,9826	0,7281	0,8192	0,7072	0,8674	7,33106	7,146772	4,634											
6	1,955	0,5405	1,364	0,3864	0,4761	0,2193	0,202	7,578145	4,634729	7,218											
7	0,4131	1,788	0,706	0,8397	0,8546	0,8379	0,8153	4,634729	7,488853	4,644											
8	0,7477	0,7579	1,157	0,4068	0,204	0,2278	0,2935	4,644391	4,624973	7,053											
9	0,5619	0,4209	2,262	0,1069	0,1119	0,1514	0,1099	4,65396	4,644391	7,724											
10	0,9879	2,316	0,4207	2,282	2,307	2,312	2,3	4,663439	7,747597	4,65											
11	2,34	0,5801	2,066	0,3069	0,2833	0,3028	0,3271	7,757906	4,65396	7,63											
12	0,6853	0,9177	0,8077	0,5345	0,5431	0,54	0,521	4,672829	4,663439	4,663											
13	0,8586	0,8704	1,706	0,3566	0,3253	0,2771	0,2505	4,682131	4,672829	7,441											
14	0,5806	0,682	1,105	0,3203	0,2587	0,3579	0,2402	4,691348	4,682131	7,007											
15	0,6165	1,49	1,202	0,5474	0,6129	0,566	0,5553	4,70048	7,306531	7,091											
16	2,01	1,31	2,184	0,2659	0,1968	0,2588	0,2009	7,60589	7,177782	7,688											
17	1,447	1,052	0,3802	1,577	1,594	1,567	1,622	7,277248	6,958448	4,672											
18	2,108	1,528	0,6423	1,637	1,64	1,609	1,619	7,653495	7,331715	4,682											
19	2,223	2,041	1,433	1,009	0,9469	1,043	1,031	7,706613	7,621195	7,267											
20	0,5073	0,6196	1,367	0,1832	0,1872	0,2563	0,2267	4,70953	4,691348	7,220											
21	2,315	1,39	1,384	0,8099	0,8244	0,7611	0,7992	7,747165	7,237059	7,232											
22	2,489	1,684	0,5023	2,321	2,305	2,252	2,291	7,819636	7,428927	4,691											
23	0,9079	2,198	1,67	0,5857	0,6809	0,5942	0,6822	4,718499	7,695303	7,420											
24	1,144	1,087	0,4368	1,308	1,302	1,32	1,286	7,042286	6,991177	4,70											
25	0,9757	0,7716	0,7901	0,583	0,5795	0,4885	0,4763	4,727388	4,70048	4,70											
26	0,4443	0,3934	1,066	0,188	0,1712	0,1717	0,2064	4,736198	4,70953	6,971											

Variable 18

Name: S2vos Type: Double

Measurement Type: Auto Length: 8

Excluded Label Case State MD code: -9999

Display format: General

Long name (label or formula with Functions): =0,046703

Labels: use any text. Formulas: use variable names or v1, v2, ..., v0 is case #.
Examples: (a) = mean(v1:v3, sqrt(v7), AGE) (b) = v1+v2; comment (after:)

После сравнения, несмотря на результат, переменной S2VOS присваиваете полученное выше значение Mean.

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10 Arial

Data: 25956* (21v by 26c)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	c1	c2	c3	w1	w2	w3	w4	x1	x2	x3	y1	y2	y3	y4	y	s2y	Gmax	SZvos	S2ost	Fish	K
1	1.589	1.093	0.3709	1.764	1.394	1.782	1.766	7.37086	6.996681	4.615121	7.475339	7.239933	7.486492	7.476472	7.419309	0.014321	0.987614	0.046703			
2	1.53	0.9497	1.176	0.4521	0.5293	0.5844	0.5921	7.333023	4.615121	7.069874	4.615121	4.615121	4.615121	4.615121	4.615121	0	0.987614	0.046703			
3	0.8646	2.087	1.406	0.4622	0.8895	0.7815	0.9298	4.615121	7.643483	7.248504	4.624973	4.624973	4.624973	4.624973	4.624973	0	0.987614	0.046703			
4	0.5498	0.7579	0.857	0.4794	0.5343	0.3901	0.3678	4.624973	4.624973	4.624973	4.634729	4.634729	4.634729	4.634729	4.634729	0	0.987614	0.046703			
5	1.527	1.27	0.9826	0.7281	0.8192	0.7072	0.8674	7.33106	7.146772	4.634729	4.644284	4.644284	4.644284	4.644284	4.644284	0	0.987614	0.046703			
6	1.955	0.5405	1.364	0.3864	0.4761	0.2193	0.202	7.578145	4.634729	7.218177	4.644391	4.644391	4.644391	4.644391	4.644391	0	0.987614	0.046703			
7	0.4131	1.788	0.706	0.8397	0.8546	0.8379	0.8153	4.634729	7.488853	4.644391	4.66	4.66	4.66	4.66	4.66	0	0.987614	0.046703			
8	0.7477	0.7579	1.157	0.4068	0.204	0.2278	0.2935	4.644391	4.624973	7.053586	4.67	4.67	4.67	4.67	4.67	0	0.987614	0.046703			
9	0.5619	0.4209	2.262	0.1069	0.1119	0.1514	0.1099	4.65396	4.644391	7.724005	4.68	4.68	4.68	4.68	4.68	0	0.987614	0.046703			
10	0.9879	2.316	0.4207	2.282	2.307	2.312	2.3	4.663439	7.747597	4.65396	7.73	7.73	7.73	7.73	7.73	0	0.987614	0.046703			
11	2.34	0.5801	2.066	0.3069	0.2833	0.3028	0.3271	7.757906	4.65396	7.63337	4.69	4.69	4.69	4.69	4.69	0	0.987614	0.046703			
12	0.6853	0.9177	0.8077	0.5345	0.5431	0.54	0.521	4.672829	4.663439	4.663439	4.7	4.7	4.7	4.7	4.7	0	0.987614	0.046703			
13	0.8586	0.8704	1.706	0.3566	0.3253	0.2771	0.2505	4.682131	4.672829	7.441907	4.7	4.7	4.7	4.7	4.7	0	0.987614	0.046703			
14	0.5806	0.6282	1.105	0.3203	0.2587	0.3579	0.2402	4.691348	4.682131	7.007601	4.71	4.71	4.71	4.71	4.71	0	0.987614	0.046703			
15	0.6165	1.49	1.202	0.5474	0.6129	0.566	0.5553	4.70048	7.306531	7.091742	4.72	4.72	4.72	4.72	4.72	0	0.987614	0.046703			
16	2.01	1.31	2.184	0.2659	0.1968	0.2588	0.2009	7.60589	7.177782	7.688913	4.73	4.73	4.73	4.73	4.73	0	0.987614	0.046703			
17	1.447	1.052	0.3802	1.577	1.594	1.567	1.622	7.272448	6.958448	4.672829	7.3	7.3	7.3	7.3	7.3	0	0.987614	0.046703			
18	2.108	1.528	0.6423	1.637	1.64	1.609	1.619	7.653495	7.331715	4.682131	7.40	7.40	7.40	7.40	7.40	0	0.987614	0.046703			
19	2.223	2.041	1.433	1.009	0.9469	1.043	1.031	7.706613	7.621195	7.267525	6.91	6.91	6.91	6.91	6.91	0	0.987614	0.046703			
20	0.5073	0.6196	1.367	0.1832	0.1872	0.2563	0.2267	4.70953	4.691348	7.220374	4.74	4.74	4.74	4.74	4.74	0	0.987614	0.046703			
21	2.315	1.39	1.384	0.8099	0.8244	0.7611	0.7992	7.747165	7.237059	7.232733	4.75	4.75	4.75	4.75	4.75	0	0.987614	0.046703			
22	2.489	1.684	0.5023	2.321	2.305	2.252	2.291	7.819636	7.428927	4.691348	7.74	7.74	7.74	7.74	7.74	0	0.987614	0.046703			
23	0.9079	2.198	1.67	0.5857	0.6809	0.5942	0.6822	4.718499	7.695303	7.420579	4.76	4.76	4.76	4.76	4.76	0	0.987614	0.046703			
24	1.144	1.087	0.4368	1.308	1.302	1.32	1.286	7.042286	6.991177	4.70048	7.17	7.17	7.17	7.17	7.17	0	0.987614	0.046703			
25	0.9757	0.7716	0.7901	0.583	0.5795	0.4885	0.4763	4.727388	4.70048	4.70953	4.77	4.77	4.77	4.77	4.77	0	0.987614	0.046703			
26	0.4443	0.3934	1.066	0.188	0.1712	0.1777	0.2064	4.736198	4.70953	6.971669	4.779123	4.787492	4.779123	4.779123	4.781216	0.000018	0.987614	0.046703			

Basic Statistics and Tables: 25956

- Descriptive statistics
- Correlation matrices**
 - Nest, independent, by groups
 - Nest, independent, by variables
 - Nest, dependent samples
 - Nest, single sample
- Breakdown & one-way ANOVA
- Breakdown, non-factorial tables
- Frequency tables
- Tables and banners
- Multiple response tables
- Difference tests: t, means
- Probability calculator

Вычисление корреляционной матрицы:
 вернуться в стартовую панель модуля **Basic Statistics / Tables;**
 в окне **Basic Statistics / Tables** выбираем **Correlation Matrices;**
 в окне **Product Moment and Partial Correlations** щёлкаем кнопку **Two list (react. matrix),** в открывшемся окне выбрать переменные для анализа (Y и все X), **Summary;**
 в окне **Product Moment and Partial Correlations** щёлкаем **OK.**

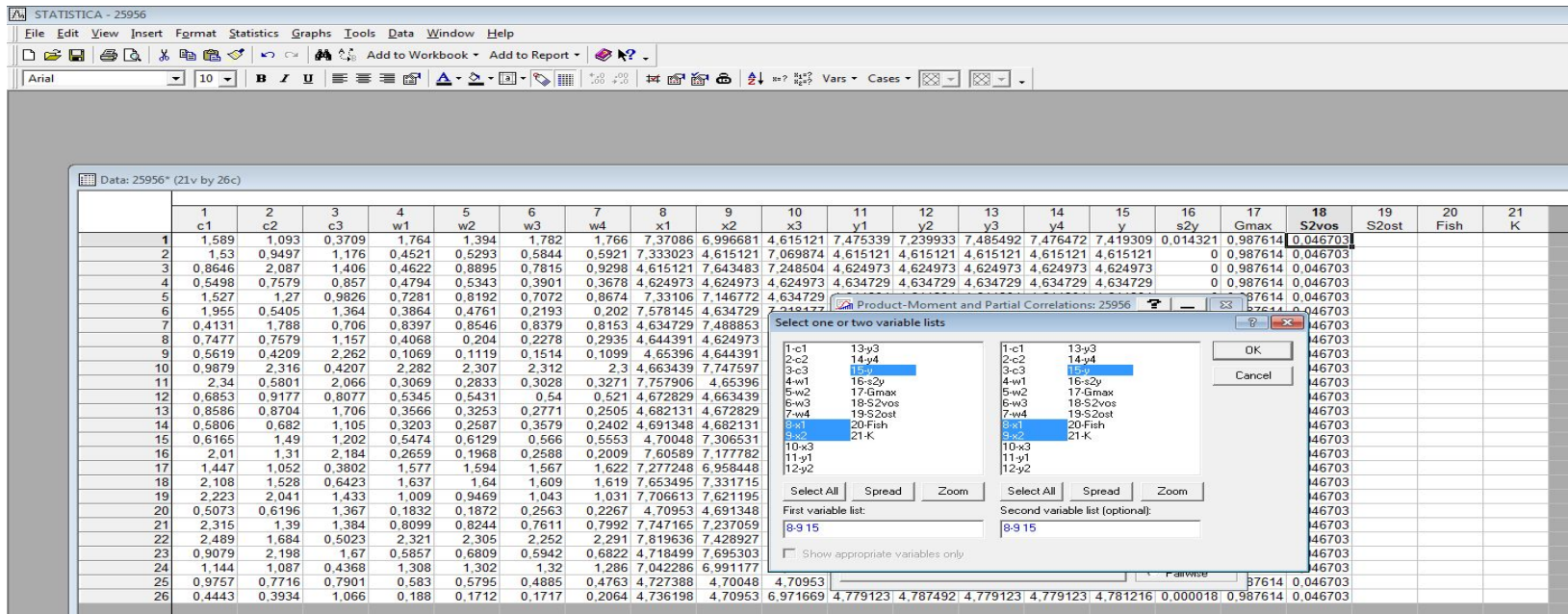
STATISTICA - 25956

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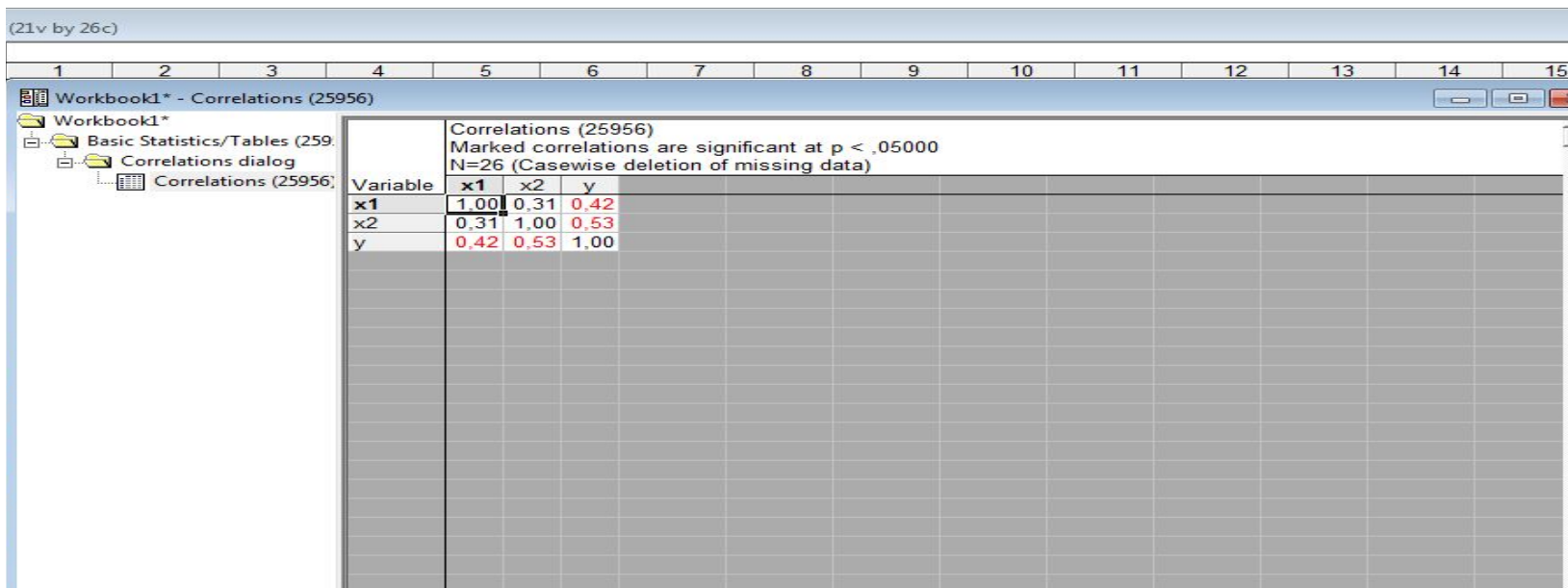
10 Arial

Data: 25956* (21v by 26c)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	c1	c2	c3	w1	w2	w3	w4	x1	x2	x3	y1	y2	y3	y4	y	s2y	Gmax	SZvos	S2ost	Fish	K
1	1.589	1.093	0.3709	1.764	1.394	1.782	1.766	7.37086	6.996681	4.615121	7.475339	7.239933	7.486492	7.476472	7.419309	0.014321	0.987614	0.046703			
2	1.53	0.9497	1.176	0.4521	0.5293	0.5844	0.5921	7.333023	4.615121	7.069874	4.615121	4.615121	4.615121	4.615121	4.615121	0	0.987614	0.046703			
3	0.8646	2.087	1.406	0.4622	0.8895	0.7815	0.9298	4.615121	7.643483	7.248504	4.624973	4.624973	4.624973	4.624973	4.624973	0	0.987614	0.046703			
4	0.5498	0.7579	0.857	0.4794	0.5343	0.3901	0.3678	4.624973	4.624973	4.624973	4.634729	4.634729	4.634729	4.634729	4.634729	0	0.987614	0.046703			
5	1.527	1.27	0.9826	0.7281	0.8192	0.7072	0.8674	7.33106	7.146772	4.634729	4.644284	4.644284	4.644284	4.644284	4.644284	0	0.987614	0.046703			
6	1.955	0.5405	1.364	0.3864	0.4761	0.2193	0.202	7.578145	4.634729	7.218177	4.644391	4.644391	4.644391	4.644391	4.644391	0	0.987614	0.046703			
7	0.4131	1.788	0.706	0.8397	0.8546	0.8379	0.8153	4.634729	7.488853	4.644391	4.66	4.66	4.66	4.66	4.66	0	0.987614	0.046703			
8	0.7477	0.7579	1.157	0.4068	0.204	0.2278	0.2935	4.644391	4.624973	7.053586	4.67	4.67	4.67	4.67	4.67	0	0.987614	0.046703			
9	0.5619	0.4209	2.262	0.1069	0.1119	0.1514	0.1099	4.65396	4.644391	7.724005	4.68	4.68	4.68	4.68	4.68	0	0.987614	0.046703			
10	0.9879	2.316	0.4207	2.282	2.307	2.312	2.3	4.663439	7.747597	4.65396	7.73	7.73	7.73	7.73	7.73	0	0.987614	0.046703			
11	2.34	0.5801	2.066	0.3069	0.2833	0.3028	0.3271	7.757906	4.65396	7.63337	4.69	4.69	4.69	4.69	4.69	0	0.987614	0.046703			
12	0.6853	0.9177	0.8077	0.5345	0.5431	0.54	0.521	4.672829	4.663439	4.663439	4.7	4.7	4.7	4.7	4.7	0	0.987614	0.046703			
13	0.8586	0.8704	1.706	0.3566	0.3253	0.2771	0.2505	4.682131	4.672829	7.441907	4.7	4.7	4.7	4.7	4.7	0	0.987614	0.046703			
14	0.5806	0.6282	1.105	0.3203	0.2587	0.3579	0.2402	4.691348	4.682131	7.007601	4.71	4.71	4.71	4.71	4.71	0	0.987614	0.046703			
15	0.6165	1.49	1.202	0.5474	0.6129	0.566	0.5553	4.70048	7.306531	7.091742	4.72	4.72	4.72	4.72	4.72	0	0.987614	0.046703			
16	2.01	1.31	2.184	0.2659	0.1968	0.2588	0.2009	7.60589	7.177782	7.688913	4.73	4.73	4.73	4.73	4.73	0	0.987614	0.046703			
17	1.447	1.052	0.3802	1.577	1.594	1.567	1.622	7.272448	6.958448	4.672829	7.3	7.3	7.3	7.3	7.3	0	0.987614	0.046703			
18	2.108	1.528	0.6423	1.637	1.64	1.609	1.619	7.653495	7.331715	4.682131	7.40	7.40	7.40	7.40	7.40	0	0.987614	0.046703			
19	2.223	2.041	1.433	1.009	0.9469	1.043	1.031	7.706613	7.621195	7.267525	6.91	6.91	6.91	6.91	6.91	0	0.987614	0.046703			
20	0.5073	0.6196	1.367	0.1832	0.1872	0.2563	0.2267	4.70953	4.691348	7.220374	4.74	4.74	4.74	4.74	4.74	0	0.987614	0.046703			
21	2.315	1.39	1.384	0.8099	0.8244	0.7611	0.7992	7.747165	7.237059	7.232733	4.75	4.75	4.75	4.75	4.75	0	0.987614	0.046703			
22	2.489	1.684	0.5023	2.321	2.305	2.252	2.291	7.819636	7.428927	4.691348	7.74	7.74	7.74	7.74	7.74	0	0.987614	0.046703			
23	0.9079	2.198	1.67	0.5857	0.6809	0.5942	0.6822	4.718499	7.695303	7.420579	4.76	4.76	4.76	4.76	4.76	0	0.987614	0.046703			
24	1.144	1.087	0.4368	1.308	1.302	1.32	1.286	7.042286	6.991177	4.70048	7.17	7.17	7.17	7.17	7.17	0	0.987614	0.046703			
25	0.9757	0.7716	0.7901	0.583	0.5795	0.4885	0.4763	4.727388	4.70048	4.70953	4.77	4.77	4.77	4.77	4.77	0	0.987614	0.046703			
26	0.4443	0.3934																			



Оценка тесноты связи между факторами и откликом
Получена следующая матрица:



Оценка коэффициентов линейной регрессии

Расчет выполняется в модуле **Multiple Regression**. Зависимая (Y) и независимые (X1, X2,..., Xn) переменные назначаются в соответствии с регрессией (2.8). Из таблицы результатов (**Regression Summary**) в лабораторный журнал не переписываем столбцы **Beta** и **Str.Err of Beta**. Из статистической «шапки» необходимо переписать только **St.Err.ofEstimate**.

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Resume... Ctrl-R

ByGroup Analysis

Basic Statistics/Tables

Multiple Regression

ANOVA

Nonparametrics

Distribution Fitting

Data: 25956* (21v by 26c)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
c1	c2	c3	w1	w2	w3	w4	x1	x2	x3	y1	y2	y3	y4	y	s2y	Gmax	SZvos	SZost	Fish	K	
1	1.589	1.093	0.3709	1.764	1.394	1.782	1.766	7.37086	6.996681	4.615121	7.475339	7.239933	7.485492	7.476472	7.419309	0.014321	0.987614	0.046703			
2	1.53	0.9497	1.176	0.521	0.5293	0.5844	0.5921	7.333023	4.615121	7.069874	4.615121	4.615121	4.615121	4.615121	4.615121	0	0.987614	0.046703			
3	0.8646	2.087	1.406	0.4622	0.8895	0.7815	0.9298	4.615121	7.643463	7.248504	4.624973	4.624973	4.624973	4.624973	4.624973	0	0.987614	0.046703			
4	0.5498	0.7579	0.857	0.4794	0.5343	0.3901	0.3678	4.624973	4.624973	4.624973	4.624973	4.624973	4.624973	4.624973	4.624973	0	0.987614	0.046703			
5	1.527	1.27	0.9826	0.7281	0.8192	0.7072	0.7072	0.8674	7.33106	7.146772	4.634729	4.634729	4.634729	4.634729	4.634729	0	0.987614	0.046703			
6	1.955	0.5405	1.364	0.3864	0.4761	0.2193	0.202	7.578145	4.634729	7.218177	4.65396	4.65396	4.65396	4.65396	4.65396	0	0.987614	0.046703			
7	0.4131	1.788	0.706	0.8397	0.8546	0.8379	0.8153	4.634729	7.488853	4.644391	4.663439	4.663439	4.663439	4.663439	4.663439	0	0.987614	0.046703			
8	0.5619	0.4209	2.262	0.1069	0.1119	0.1514	0.2278	0.2935	4.644391	4.624973	7.053586	4.672829	4.672829	4.672829	4.672829	0	0.987614	0.046703			
9	0.9879	2.316	0.4207	2.282	2.312	2.3	0.1514	0.1099	4.65396	4.644391	7.724005	4.682131	4.682131	4.682131	4.682131	0	0.987614	0.046703			
10	2.34	0.5801	2.066	0.3069	0.2833	0.3028	0.2009	0.60589	1.177102	7.608913	4.736198	4.736198	4.736198	4.736198	4.736198	0.000033	0.987614	0.046703			
11	2.34	0.5801	2.066	0.3069	0.2833	0.3028	0.2009	0.60589	1.177102	7.608913	4.736198	4.736198	4.736198	4.736198	4.736198	0	0.987614	0.046703			
12	0.6853	0.9177	0.8077	0.5345	0.5431	0.54	0.521	4.672829	4.663439	4.663439	4.70048	4.70048	4.70048	4.70048	4.70048	0	0.987614	0.046703			
13	0.8586	0.8704	1.706	0.3566	0.3253	0.2771	0.2505	4.682131	4.672829	7.441907	4.70953	4.70953	4.70953	4.70953	4.70953	0	0.987614	0.046703			
14	0.5806	0.682	1.105	0.3203	0.2587	0.3579	0.2402	4.691348	4.682131	7.007601	4.718499	4.718499	4.718499	4.718499	4.718499	0	0.987614	0.046703			
15	0.6165	1.49	1.202	0.5474	0.6129	0.566	0.5553	4.70048	7.306531	7.091742	4.727388	4.727388	4.727388	4.727388	4.727388	0	0.987614	0.046703			
16	2.01	1.31	2.184	0.2659	0.1968	0.2563	0.2267	4.70953	4.691348	7.220374	4.744932	4.744932	4.744932	4.744932	4.744932	0.000019	0.987614	0.046703			
17	1.447	1.052	0.3802	1.577	1.594	1.567	1.622	7.272448	6.958448	4.672829	7.36328	7.374002	7.356918	7.391415	7.371404	0.000228	0.987614	0.046703			
18	2.108	1.528	0.6423	1.637	1.64	1.609	1.619	7.653495	7.331715	4.682131	7.400621	7.402452	7.383368	7.389564	7.394001	0.000083	0.987614	0.046703			
19	2.223	2.041	1.433	1.009	0.9469	1.043	1.031	7.706613	7.621195	7.267525	6.916715	7.449322	6.949856	6.938284	6.387447	1.199235	0.987614	0.046703			
20	0.5073	0.6196	1.367	0.1832	0.1872	0.2563	0.2267	4.70953	4.691348	7.220374	4.744932	4.744932	4.744932	4.744932	4.744932	0.000019	0.987614	0.046703			
21	2.315	1.39	1.384	0.8099	0.8244	0.7611	0.7992	7.747165	7.237059	7.232733	4.75359	4.75359	4.75359	4.75359	4.75359	0.000018	0.987614	0.046703			
22	2.489	1.684	0.5023	2.321	2.305	2.252	2.291	7.819366	7.428927	4.691348	7.749753	7.742836	7.719574	7.736744	7.737227	0.000167	0.987614	0.046703			
23	0.9079	2.198	1.67	0.5857	0.6809	0.5942	0.6822	4.718499	7.695303	7.420579	4.762174	4.770685	4.762174	4.762174	4.764302	0.000018	0.987614	0.046703			
24	1.144	1.087	0.4368	1.308	1.302	1.32	1.286	7.042286	6.991177	4.70048	7.176255	7.171657	7.185387	7.159292	7.173148	0.000018	0.987614	0.046703			
25	0.9757	0.7716	0.7901	0.583	0.5795	0.4885	0.4763	4.727388	4.70048	4.70953	4.770685	4.779123	4.770685	4.777294	4.777294	0.000018	0.987614	0.046703			
26	0.4443	0.3934	1.066	0.188	0.1712	0.1717	0.2064	4.736198	4.70953	6.971669	4.779123	4.779123	4.787492	4.779123	4.781216	0.000018	0.987614	0.046703			

STATISTICA - 25956

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Data: 25956* (21v by 26c)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
c1	c2	c3	w1	w2	w3	w4	x1	x2	x3	y1	y2	y3	y4	y	s2y	Gmax	SZvos	SZost	Fish	K	
1	1.589	1.093	0.3709	1.764	1.394	1.782	1.766	7.37086	6.996681	4.615121	7.475339	7.239933	7.485492	7.476472	7.419309	0.014321	0.987614	0.046703			
2	1.53	0.9497	1.176	0.521	0.5293	0.5844	0.5921	7.333023	4.615121	7.069874	4.615121	4.615121	4.615121	4.615121	4.615121	0	0.987614	0.046703			
3	0.8646	2.087	1.406	0.4622	0.8895	0.7815	0.9298	4.615121	7.643463	7.248504	4.624973	4.624973	4.624973	4.624973	4.624973	0	0.987614	0.046703			
4	0.5498	0.7579	0.857	0.4794	0.5343	0.3901	0.3678	4.624973	4.624973	4.624973	4.624973	4.624973	4.624973	4.624973	4.624973	0	0.987614	0.046703			
5	1.527	1.27	0.9826	0.7281	0.8192	0.7072	0.7072	0.8674	7.33106	7.146772	4.634729	4.634729	4.634729	4.634729	4.634729	0	0.987614	0.046703			
6	1.955	0.5405	1.364	0.3864	0.4761	0.2193	0.202	7.578145	4.634729	7.218177	4.65396	4.65396	4.65396	4.65396	4.65396	0	0.987614	0.046703			
7	0.4131	1.788	0.706	0.8397	0.8546	0.8379	0.8153	4.634729	7.488853	4.644391	4.663439	4.663439	4.663439	4.663439	4.663439	0	0.987614	0.046703			
8	0.5619	0.4209	2.262	0.1069	0.1119	0.1514	0.2278	0.2935	4.644391	4.624973	7.053586	4.672829	4.672829	4.672829	4.672829	0	0.987614	0.046703			
9	0.9879	2.316	0.4207	2.282	2.312	2.3	0.1514	0.1099	4.65396	4.644391	7.724005	4.682131	4.682131	4.682131	4.682131	0	0.987614	0.046703			
10	2.34	0.5801	2.066	0.3069	0.2833	0.3028	0.2009	0.60589	1.177102	7.608913	4.736198	4.736198	4.736198	4.736198	4.736198	0.000033	0.987614	0.046703			
11	2.34	0.5801	2.066	0.3069	0.2833	0.3028	0.2009	0.60589	1.177102	7.608913	4.736198	4.736198	4.736198	4.736198	4.736198	0	0.987614	0.046703			
12	0.6853	0.9177	0.8077	0.5345	0.5431	0.54	0.521	4.672829	4.663439	4.663439	4.70048	4.70048	4.70048	4.70048	4.70048	0	0.987614	0.046703			
13	0.8586	0.8704	1.706	0.3566	0.3253	0.2771	0.2505	4.682131	4.672829	7.441907	4.70953	4.70953	4.70953	4.70953	4.70953	0	0.987614	0.046703			
14	0.5806	0.682	1.105	0.3203	0.2587	0.3579	0.2402	4.691348	4.682131	7.007601	4.718499	4.718499	4.718499	4.718499	4.718499	0	0.987614	0.046703			
15	0.6165	1.49	1.202	0.5474	0.6129	0.566	0.5553	4.70048	7.306531	7.091742	4.727388	4.727388	4.727388	4.727388	4.727388	0	0.987614	0.046703			
16	2.01	1.31	2.184	0.2659	0.1968	0.2563	0.2267	4.70953	4.691348	7.220374	4.744932	4.744932	4.744932	4.744932	4.744932	0.000019	0.987614	0.046703			
17	1.447	1.052	0.3802	1.577	1.594	1.567	1.622	7.272448	6.958448	4.672829	7.36328	7.374002	7.356918	7.391415	7.371404	0.000228	0.987614	0.046703			
18	2.108	1.528	0.6423	1.637	1.64	1.609	1.619	7.653495	7.331715	4.682131	7.400621	7.402452	7.383368	7.389564	7.394001	0.000083	0.987614	0.046703			
19	2.223	2.041	1.433	1.009	0.9469	1.043	1.031	7.706613	7.621195	7.267525	6.916715	7.449322	6.949856	6.938284	6.387447	1.199235	0.987614	0.046703			
20	0.5073	0.6196	1.367	0.1832	0.1872	0.2563	0.2267	4.70953	4.691348	7.220374	4.744932	4.744932	4.744932	4.744932	4.744932	0.000019	0.987614	0.046703			
21	2.315	1.39	1.384	0.8099	0.8244	0.7611	0.7992	7.747165	7.237059	7.232733	4.75359	4.75359	4.75359	4.75359	4.75359	0.000018	0.987614	0.046703			
22	2.489	1.684	0.5023	2.321	2.305	2.252	2.291	7.819366	7.428927	4.691348	7.749753	7.742836	7.719574	7.736744	7.737227	0.000167	0.987614	0.046703			
23	0.9079	2.198	1.67	0.5857	0.6809	0.5942	0.6822	4.718499	7.695303	7.420579	4.762174	4.770685	4.762174	4.762174							

К анализу остатков и выявлению выбросов

Для выявления возможных выбросов в окне **Multiple Regression Results** выбираем закладку **Residuals/assumptions/prediction** и щёлкаем **Perform residual analysis**. В окне **Residual analysis** выбираем закладку **Residuals** и щёлкаем **Casewise plot of residuals**. Слева от таблицы звёздочками показано расположение остатков в интервале $[0 \pm 3\sigma]$. Если обнаружен опыт, в котором есть выброс, его номер записывается в лабораторный журнал.

Для удаления выброса из обработки необходимо выполнить следующие действия:

восстанавливаем окно **Residual analysis** щелчком по соответствующей кнопке на панели анализа, щёлкаем **Cancel**;

в окне **Multiple Regression Results** щёлкаем кнопку **Select Cases**.

в окне **Analysis / Graph Case Selection Conditions** включаем **Enable Select Conditions**;

в разделе **Exclude cases** в поле **or case numbers** вписываете номер выброса; если вам необходимо ввести несколько точек или диапазон вписывайте их через точку с запятой / тире соответственно; кликаете **ОК**;

получаете новую таблицу **Regression Summary** и снова полностью переписываете её в лабораторный журнал.

Data: 25956* (21v by 26c)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
	c1	c2	c3	w1	w2	w3	w4	x1	x2	x3	y1	y2	y3	y4	y	s2y	Gmax	S2vos	S2ost	Fish	K	
1	1,589	1,093	0,3709	1,764	1,394	1,782	1,766	7,37086	6,996681	4,615121	7,475339	7,239933	7,485492	7,476472	7,419309	0,014321	0,987614	0,046703				
2	1,53	0,9497	1,176	0,4521	0,5293	0,5844	0,5921	7,333023	4,615121	7,475339	7,239933	7,485492	7,476472	7,419309	0,014321	0,987614	0,046703					
3	0,8646	2,087	1,406	0,4622	0,8895	0,7815	0,9298	4,615121	7,475339	7,239933	7,485492	7,476472	7,419309	0,014321	0,987614	0,046703						
4	0,5498	0,7579	0,857	0,4794	0,5343	0,3901	0,3678	4,624973	4,624973	4,624973	4,624973	4,624973	4,624973	4,624973	4,624973	4,624973	4,624973	4,624973	4,624973	4,624973	4,624973	
5	1,527	1,27	0,9826	0,7281	0,8192	0,7072	0,8674	7,33106	7,146													
6	1,955	0,5																				
7	0,4131	1,																				
8	0,7477	0,7																				
9	0,5619	0,4																				
10	0,9879	2,																				
11	2,34	0,5																				
12	0,6853	0,9																				
13	0,8586	0,8																				
14	0,5806	0,																				
15	0,6165	1,																				
16	2,01	1,																				
17	1,447	1,																				
18	2,108	1,																				
19	2,223	2,																				
20	0,5073	0,6																				
21	2,315	1,																				
22	2,489	1,																				
23	0,9079	2,																				
24	1,144	1,																				
25	0,9757	0,7																				
26	0,4443	0,3																				

Workbook2* - Regression Summary for Dependent Variable: y (25956)

Multiple Regression (25956)

- Summary Statistics
- Regression Summary

Regression Summary for Dependent Variable: y (25956)			
	Beta	Std. Err. of Beta	t
N=26			
Intercept			4.9
x1	0,287946	0,150437	0,2
x2	0,310621	0,155742	0,2
x3	-0,465469	0,148318	-0,4

Multiple Regression Results

Dependent: y Multiple R = ,74246184 F = 9,008342
 R² = ,55124959 df = 3,22
 No. of cases: 26 adjusted R² = ,49005635 p = ,000441
 Standard error of estimate: ,861250431
 Intercept: 4,912048348 Std. Error: 1,390762 t(22) = 3,5319 p = ,0019

x1 beta=,288 x2 beta=,311 x3 beta=-,47

(significant betas are highlighted)

Alpha for highlighting effects: .05

Quick | Advanced | Residuals/assumptions/prediction

Perform residual analysis

Descriptive statistics

Code generator

Predict values

Predict dependent variable

Compute confidence limits Alpha: .05

Compute prediction limits

OK Cancel Options

Residual Analysis: 25956

Dependent: y Multiple R: .74246184 F = 9,008342
 R?: .55124959 df = 3,22
 No. of cases: 26 adjusted R?: .49005635 p = .000441
 Standard error of estimate: .861250431
 Intercept: 4,912048348 Std.Error: 1,390762 t(22) = 3,5319 p < .0019

Quick | Advanced | Residuals | Predicted | Scatterplots | Probability plots | Outliers | Save

Histogram of residuals Type of residual
 Raw residuals Deleted residuals
 Casewise plot of residuals Standard residuals Cook's distances
 Residuals vs. independent var. Mahalanobis distances
 Histogram of observed

Cancel Options

Workbook2* - Raw Residual (25956)

Multiple Regression (25956)
 Regression results dialog
 Summary Statistics
 Regression Summary
 Regression residuals dialog
 Raw Residual (25956)

Case -3s 0 +3s

Case	-3s	0	+3s	Raw Residual	Std. Error
1	.	.	*	7.419309	0.30
2	.	.	*	4.615120	0.34
3	.	.	*	4.624973	0.40
4	.	.	*	4.634729	0.37
5	*	.	.	4.644391	0.30
6	.	.	*	4.653960	0.37
7	.	*	.	4.663439	0.36
8	.	.	*	4.672829	0.28
9	.	.	*	4.682131	0.31
10	.	.	*	7.740761	0.38
11	.	.	*	4.691348	0.40
12	.	*	.	4.700480	0.36
13	.	.	*	4.709530	0.29
14	.	.	*	4.718499	0.27
15	.	*	.	4.727388	0.35
16	.	*	.	4.736198	0.35
17	.	.	*	7.371404	0.29
18	.	.	*	7.394001	0.31
19	.	.	*	6.387447	0.35
20	.	.	*	4.747097	0.27
21	.	*	.	4.755736	0.33
22	.	.	*	7.737227	0.33
23	.	.	*	4.764302	0.41
24	.	.	*	7.173148	0.27
25	.	*	.	4.772794	0.35
26	.	.	*	4.781216	0.26
Minimum	*	.	.	4.615120	0.26

Residual Analysis: 25956

Dependent: y Multiple R: .74246184 F = 9,008342
 R?: .55124959 df = 3,22
 No. of cases: 26 adjusted R?: .49005635 p = .000441
 Standard error of estimate: .861250431
 Intercept: 4,912048348 Std.Error: 1,390762 t(22) = 3,5319 p < .0019

Quick | Advanced | Residuals | Predicted | Scatterplots | Probability plots | Outliers | Save

Histogram of residuals Type of residual
 Casewise plot of residuals Raw residuals Deleted residuals
 Residuals vs. independent var. Standard residuals Cook's distances
 Histogram of observed Mahalanobis distances

Cancel Options

Workbook2* - Raw Residual (25956)

Multiple Regression (25956)
 Regression results dialog
 Summary Statistics
 Regression Summary
 Regression residuals dialog
 Raw Residual (25956)

Case	-3s	0	+3s	Observed Value	Predicted Value	Residual	Standard Pred. v.	Standard Residual	Std. Pred
1	.	.	*	7.419309	6.634573	0.78474	1.37358	0.91116	0.30
2	.	.	*	4.615120	4.944973	-0.32985	-0.51328	-0.38299	0.34
3	.	.	*	4.624973	5.044462	-0.41949	-0.40218	-0.48707	0.40
4	.	.	*	4.634729	5.329328	-0.69460	-0.08405	-0.80650	0.37
5	*	.	.	4.644391	6.657648	-2.01326	1.39935	-2.33760	0.30
6	.	.	*	4.653960	4.946469	-0.29251	-0.51161	-0.33963	0.37
7	.	*	.	4.663439	6.102588	-1.43915	0.77949	-1.67100	0.36
8	.	.	*	4.672829	4.312288	0.36054	-1.21984	0.41862	0.28
9	.	.	*	4.682131	4.037822	0.64431	-1.52635	0.74811	0.31
10	.	.	*	7.740761	6.175810	1.56495	0.86126	1.81707	0.38
11	.	.	*	4.691348	4.819975	-0.12863	-0.65288	-0.14935	0.40
12	.	*	.	4.700480	5.335042	-0.63456	-0.07767	-0.73679	0.36
13	.	.	*	4.709530	4.170962	0.53857	-1.37766	0.62533	0.29
14	.	.	*	4.718499	4.358399	0.36010	-1.16834	0.41811	0.27
15	.	*	.	4.727388	5.039134	-0.31175	-0.40813	-0.36197	0.35
16	.	*	.	4.736198	5.446886	-0.71069	0.04723	-0.82518	0.35
17	.	.	*	7.371404	6.577534	0.79387	1.30989	0.92176	0.29
18	.	.	*	7.394001	6.765038	0.62896	1.51928	0.73029	0.31
19	.	.	*	6.387447	5.768843	0.61860	0.40678	0.71826	0.35
20	.	.	*	4.747097	4.275740	0.47136	-1.26065	0.54729	0.27
21	.	*	.	4.755736	5.688664	-0.93293	0.31724	-1.08323	0.33
22	.	.	*	7.737227	6.827291	0.90994	1.58880	1.05653	0.33
23	.	.	*	4.764302	5.010864	-0.24656	-0.43970	-0.28628	0.41
24	.	.	*	7.173148	6.518682	0.65447	1.24416	0.75990	0.27
25	.	*	.	4.772794	5.338761	-0.56597	-0.07352	-0.65715	0.35
26	.	.	*	4.781216	4.391682	0.38953	-1.13117	0.45229	0.26
Minimum	*	.	.	4.615120	4.037822	-2.01326	-1.52635	-2.33760	0.26

Multiple Linear Regression: 25956

Quick | Advanced

Variables

Dependent: y
 Independent: x1-x3

Weighted moments
 DF =
 W-1 N-1

MD deletion
 Casewise
 Pairwise
 Mean substitution

See also the General Regression Models (GRM) module.

16	4.736198	5.446886	-0.71069	0.04723	-0.82518	0.35
17	7.371404	6.577534	0.79387	1.30989	0.92176	0.29
18	7.394001	6.765038	0.62896	1.51928	0.73029	0.31
19	6.387447	5.768843	0.61860	0.40678	0.71826	0.35
20	4.747097	4.275740	0.47136	-1.26065	0.54729	0.27
21	4.755736	5.688664	-0.93293	0.31724	-1.08323	0.33
22	7.737227	6.827291	0.90994	1.58880	1.05653	0.33
23	4.764302	5.010864	-0.24656	-0.43970	-0.28628	0.41
24	7.173148	6.518682	0.65447	1.24416	0.75990	0.27
25	4.772794	5.338761	-0.56597	-0.07352	-0.65715	0.35
26	4.781216	4.391682	0.38953	-1.13117	0.45229	0.26
Minimum	4.615120	4.037822	-2.01326	-1.52635	-2.33760	0.26

Raw Residual (25956)

SPSS - Workbook2* - (Raw Residual (25956))

File Edit View Insert Format Statistics Graphs Tools Data Workbook Window Help

10 11 12 13 14 15 16 17 18 19 20 21

Data: 25956* (21v by 26c)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
	c1	c2	c3	w1	w2	w3	w4	x1	x2	x3	y1	y2	y3	y4	y	s2y	Gmax	S2vos	S2ost	Fish	K	
1	1.589	1.093	0.3709	1.764	1.394	1.782	1.766	7.37086	6.99681	4.615121	7.475339	7.239933	7.485492	7.476472	7.419309	0.014321	0.987614	0.046703				
2	1.53	0.9497	1.176	0.4521	0.5293	0.5844	0.5921	7.333023	4.615121													
3	0.8646	2.087	1.406	0.4622	0.8895	0.7815	0.9298	4.615121	7.643483	7.248												
4	0.5498	0.7579	0.857	0.4794	0.5343	0.3901	0.3678	4.624973	4.6249													
5	1.527	1.27	0.9826	0.7281	0.8192	0.7072	0.8574	7.33106	7.1467													
6	1.955	0.5																				
7	0.4131	0.1																				
8	0.7477	0.7																				
9	0.5619	0.4																				
10	0.9879	2																				
11	2.34	0.5																				
12	0.6853	0.9																				
13	0.8586	0.8																				
14	0.5806	0																				
15	0.6165																					
16	2.01																					
17	1.447	1																				
18	2.108	1																				
19	2.223	2																				
20	0.5073	0.6																				
21	2.315	1																				
22	2.489	1																				
23	0.9079	2																				
24	1.144	1																				
25	0.9757	0.7																				
26	0.4443	0.3																				

Analysis/Graph Case Selection Conditions

Use current Spreadsheet selection conditions

Use selection conditions for this Analysis/Graph only

Enable Selection Conditions

Include cases

All

Specific, selected by

By expression

or case number

Exclude cases (from the set of cases defined in the 'Include cases' section)

By expression

or case number

By case number: Enter case numbers and/or ranges. Example: 1,3,5-12

By expression: Use the same operators, functions, and syntax as in the spreadsheet formulae. Use variable names or v1, v2, ... v0 is the case number (v0#4 means cases 1-3). Examples: (a) v#0 OR age#18 (b) gender#MALE AND v#4<(v#5+6)

OK Cancel Open Save As

SPSS - 25956* (21v by 26c)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
	c1	c2	c3	w1	w2	w3	w4	x1	x2	x3	y1	y2	y3	y4	y	s2y	Gmax	S2vos	S2ost	Fish	K	
1	1.589	1.093	0.3709	1.764	1.394	1.782	1.766	7.37086	6.99681	4.615121	7.475339	7.239933	7.485492	7.476472	7.419309	0.014321	0.987614	0.046703				
2	1.53	0.9497	1.176	0.4521	0.5293	0.5844	0.5921	7.333023	4.615121	7.069												
3	0.8646	2.087	1.406	0.4622	0.8895	0.7815	0.9298	4.615121	7.643483	7.248												
4	0.5498	0.7579	0.857	0.4794	0.5343	0.3901	0.3678	4.624973	4.624973	4.624												
5	1.527	1.27	0.9826	0.7281	0.8192	0.7072	0.8574	7.33106	7.146772	4.634												
6	1.955	0.5405	1.364	0.3864	0.4761	0.2193	0.202	7.578145	4.634729	7.218												
7	0.4131	1.788	0.706	0.8397	0.8546	0.8379	0.8153	4.634729	7.488853	4.644												
8	0.7477	0.7579	1.157	0.4068	0.204	0.2278	0.2935	4.644391	4.624973	7.053												
9	0.5619	0.4209	2.262	0.1069	0.1119	0.1514	0.1099	4.65396	4.644391	7.724												
10	0.9879	2.316	0.4207	2.282	2.307	2.312	2.3	4.663439	7.747597	4.65												
11	2.34	0.5801	2.066	0.3069	0.2833	0.3028	0.3271	7.757906	4.65396	7.63												
12	0.6853	0.9177	0.8077	0.5345	0.5431	0.54	0.521	4.672829	4.663439	4.663												
13	0.8586	0.8704	1.706	0.3566	0.3253	0.2771	0.2505	4.682131	4.672829	7.441												
14	0.5806	0.682	1.105	0.3203	0.2587	0.3579	0.2402	4.691348	4.682131	7.007												
15	0.6165	1.49	1.202	0.5474	0.6129	0.566	0.5553	4.70048	7.306531	7.091												
16	2.01	1.31	2.184	0.2659	0.1968	0.2588	0.2009	7.60589	7.17782	7.688												
17	1.447	1.052	0.3802	1.577	1.594	1.567	1.622	7.277248	9.958448	4.672												
18	2.108	1.528	0.6423	1.637	1.64	1.609	1.619	7.653495	7.331715	4.682												
19	2.223	2.041	1.433	1.009	0.9469	1.043	1.031	7.706613	7.621195	7.267												
20	0.5073	0.6196	1.367	0.1832	0.1872	0.2563	0.2267	4.70953	4.691348	7.220												
21	2.315	1.39	1.384	0.8099	0.8244	0.7611	0.7992	7.747165	7.237059	7.232												
22	2.489	1.684	0.5023	2.321	2.305	2.252	2.291	7.819636	7.428927	4.691												
23	0.9079	2.198	1.67	0.5857	0.6809	0.5942	0.6822	4.718499	7.695303	4.420												
24	1.144	1.087	0.4368	1.308	1.302	1.32	1.286	7.042286	6.991177	4.70												
25	0.9757	0.7716	0.7901	0.583	0.5795	0.4885	0.4763	4.727388	4.70048	4.70												
26	0.4443	0.3934	1.056	0.188	0.1712	0.1717	0.2064	4.736198	4.70953	6.974												

Variable 19

Name: S2ost Type: Double

Measurement Type: Auto Length: 8

Excluded Label Case State MD code: 9999

Display format

General

Number

Date

Time

Scientific

Currency

Percentage

Fraction

Custom

Long name (label or formula with Functions)

=0.74654*v2

Labels: use any text. Formulas: use variable names or v1, v2, ..., v0 is case #. Example: (a) =mean(v1-v3, sqrt(v7), AIG) (b) =v1+v2, comment (after)

Summary for Dependent Variable: y (25956)

Regression Summary for Dependent Variable: y (25956)

R= .82020859 R^2= .67274213 Adjusted R^2= .62599100

F(3,21)=14.390 p<.00003 Std. Error of estimate: .74654

Exclude cases: 5

	Beta	Std. Err. of Beta	B	Std. Err. of B	t(21)	p-level
N=25						
Intercept			5.050679	1.206493	4.18625	0.000416
x1	0.342954	0.130691	0.287277	0.109474	2.62416	0.015853
x2	0.327529	0.134640	0.287930	0.118362	2.43262	0.024017
x3	-0.532931	0.128784	-0.491495	0.118771	-4.13817	0.000467

В начале рассчитываем значение переменной S2OST, как квадрат величины St.Err.ofEstimate: =St.Err.ofEstimate^2.

Проверка адекватности регрессии

Расчетный критерий Фишера:

$$F = \frac{S_{ост}^2}{S_{бощ}^2} =$$

Обратный переход к исходному уравнению кинетики

Ур-е регрессии: $\hat{Y} = -1,029 + 0,257 * X_1 - 0,738 * X_2 - 0,763 * X_3 + 0,598 * X_4$

Константа скорости: $k = e^{b_0} = e^{-1,029} = 0,357$

Ур-е кинетики: $W = 0,357 * C_1^{0,257} * C_2^{-0,738} * C_3^{-0,763} * C_4^{0,598}$

