

INTERLABORATORY TRIAL

IIC/TEFO

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INTRODUCTION

As part of the agreement with TEFO to become a STARFISH user-centre, they are carrying out a series of extensibility tests on their Rack. To date they have completed a series of tests on three sets of 14G 1 x 1 rib fabric, WD2, JDH, and MJDH at two different strains, 0.15 N/cm and 0.3 N/cm on both untreated samples and after a series of different laundering treatments, including 5 wash and tumble dry cycles.

The details of this project and an analysis of the results will be the subject of a separate report at a later date. However to enable us to obtain an idea of the correlation between our two laboratories, TEFO made measurements of courses and wales on the three sets of fabrics in the Reference State. They did not measure count and stitch length at this stage as they wanted to examine extensibility after 5 W + T with the addition of softener in the final rinse.

RESULTS

TEFO carried out twenty measurements of courses and wales for each sample (4 x 5 replications) as compared to our standard test method which stipulates ten measurements (2 x 5 replications). Consequently, in all cases, the 95% Confidence Limits for the TEFO results are approximately half the size of ours.

Winch Dyed (WD2)

Tables 1 and 2 give the measurements for courses and wales made by IIC and TEFO. Table 1 shows in addition the 95% Confidence Limits, Table 2 the difference and % differences between the two labs and also the product of C x W, stitches per sq. cm.

Two-column analysis of the results indicates that there is no significant difference between the two labs (Tables 3 and 4) which is confirmed by the single column analysis of the % differences (Tables 5 and 6), although an examination of the data plots, Figures 1 - 3, does suggest a degree of skewness, slack to tight.

Regression analysis using the model $y = ax$ confirms this although the correlation coefficients are excellent for courses and stitch density and very good for wales.

	<u>Slope</u>	<u>r²</u>	<u>r</u>
Courses	0.9972	0.9903	0.9951
Wales	0.9911	0.9436	0.9714
Stitches	0.9938	0.9844	0.9922

Jet Dyed Compacted (JDH)

Table 7 gives the measurements for courses and wales with respective 95% Confidence Limits, Table 8 gives the measurements with differences, % differences and stitch density.

Two-column analysis of the results shows no significant difference between course measurements but a significant difference at the 95% level for wales and stitches (Tables 9 and 10). Again this is confirmed by the single column analysis of the % differences (Tables 11 and 12). Examination of the data plots (Figures 4 - 6) confirms that TEFO are consistently reporting more wales than IIC by an average 1.6% and stitches by an average 1.3%.

Regression analysis using the model $y = ax$ confirms this although once again the correlation coefficients are excellent.

	<u>Slope</u>	<u>r²</u>	<u>r</u>
Courses	1.0001	0.9865	0.9932
Wales	1.0154	0.9602	0.9799
Stitches	1.0159	0.9946	0.9973

Mercerised Jet Dyed Compacted (MJDH)

Table 13 gives the measurements for courses and wales with respective 95% Confidence Limits. Table 14 gives the measurements with differences, % differences and stitches.

In this case two-column analysis shows a significant difference between the measurements of courses. TEFO are reporting 3.5% fewer courses than IIC

which is significant at the 99.9% level, and there is also a highly significant difference between stitches. However, there is no difference between the measurements for wales (Tables 15 and 16). Single column analysis of the % differences confirms this (Tables 17 and 18). Figures 7 - 9 visually confirm the results.

Regression analysis using the model $y = ax$ again gives excellent correlation coefficients.

	<u>Slope</u>	<u>r²</u>	<u>r</u>
Courses	0.9675	0.983	0.9915
Wales	1.0022	0.9861	0.9930
Stitches	0.9698	0.9957	0.9978

CONCLUSIONS

The measurements of courses and wales between the two laboratories are highly correlated in all cases although for winch dyed and jet dyed the correlation for wales is the worst.

For winch dyed fabrics there are also no significant differences between the measurements reported by both laboratories.

For the jet dyed fabrics there is a significant difference at the 95% level for wales; TEFO consistently record more wales than IIC, and for the mercerised jet dyed fabrics there is a significant difference at the 99.9% level for courses; TEFO consistently record less relaxed courses than IIC.

From these results therefore it is difficult to detect a consistent difference between the two labs. An explanation for the differences found for the jet dyed and mercerised jet dyed fabrics may lie in the fact that of the 3 sets these two are the oldest, from the original CP78 processing. They may therefore be caused by an effect of storage over a long period of time, although this seems unlikely, or simply that our own laboratory measuring techniques have undergone changes during the last 5 years. Significantly, the more recently processed and tested fabric set, WD2, shows both a high degree of correlation and no significant differences in the results.

Confirmation one way or another may be possible from results obtained during the next set of extensibility trials which are being carried out on 40 samples of both single and twofold single jersey fabrics. If at this stage the situation remains unclear we should instigate a more formal trial when both labs will simultaneously test an appropriate set of fabrics.

For the time being however we can probably be reasonably confident in any data supplied to us by TEF0.

TABLE 1

Inter Laboratory Comparison IIC/TEFO

1x1 RIB : 14 Gauge

Finish 1 - Winch Dyed (WD2) - REFERENCE STATE

Sample No	IIC		TEFO		IIC		TEFO	
	C/3cm	95%CL	C/3cm	95%CL	W/3cm	95%CL	W/3cm	95%CL
R26/350	42.2	0.7	41.5	0.2	29.3	0.6	28.2	0.1
R26/326	45.1	0.2	45	0.3	30.5	0.6	30	0.2
R26/306	48.9	1.1	48.5	0.3	32.3	0.4	31.8	0.2
R26/285	53.2	0.7	54.2	0.3	33.4	0.4	33.4	0.2
R26/267	58.8	0.7	58.3	0.4	34.2	0.5	34.7	0.3
R30/350	41.1	0.5	41.1	0.3	29.5	0.4	28.2	0.3
R30/326	44.3	0.6	43.9	0.3	31.7	0.5	30.7	0.3
R30/306	48.2	0.7	47.5	0.4	32.1	0.4	31.9	0.2
R30/285	53.1	0.4	53.2	0.4	33.6	0.6	34	0.2
R30/267	56.3	0.6	56.7	0.4	34.9	0.5	35.6	0.2
R34/350	41.6	0.4	40.1	0.2	29.6	0.7	28.1	0.3
R34/326	44.1	0.6	43.4	0.4	29.7	0.5	29.5	0.5
R34/306	46.3	0.5	46.2	0.2	32.5	0.4	32	0.3
R34/285	50.9	0.5	51.1	0.3	34.5	0.5	34.1	0.2
R34/267	54.5	1.3	55.6	0.3	35.9	0.4	35.7	0.2
R34/248	62.4	0.7	61.9	0.3	36.5	0.5	37.1	0.3

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 (1) IIC Data - Mean of TEN measurements (2*5 Replications)
 (2) TEFO Data - Mean of TWENTY measurements (4*5 Replications)
 (3) 95%CL = 95% Confidence Limits

*** COLUMN STATISTICS ***

		N	Mean	SD	CV%
1.	IIC C/3cm	16	49.4375	8.4642	13.08
2.	95%CL	16	0.6375	0.2630	41.25
3.	TEFO C/3cm	16	49.2625	6.7593	13.72
4.	95%CL	16	0.3125	0.0719	23.00
5.	IIC W/3cm	16	32.5125	2.3460	7.22
6.	95%CL	16	0.4938	0.0929	18.81
7.	TEFO W/3cm	16	32.1875	2.8964	9.00
8.	95%CL	16	0.2500	0.0894	35.78

Inter Laboratory Comparison IIC/TEFO

1x1 RIB : 14 Gauge

Finish 1 - Winch Dved (WD2) - REFERENCE STATE

Sample No	IIC	TEFO	D	%D	IIC	TEFO	D	%D	IIC	TEFO	D	%D
	C/3cm	C/3cm			W/3cm	W/3cm			S/socm	S/socm		
R26/350	42.2	41.5	-0.7	-1.658	29.3	28.2	-1.1	-3.754	137.38	130.03	-7.351	-5.350
R26/326	45.1	45	-0.099	-0.221	30.5	30	-0.5	-1.639	152.83	150	-2.838	-1.857
R26/306	48.9	48.5	-0.4	-0.817	32.3	31.8	-0.5	-1.547	175.49	171.36	-4.13	-2.353
R26/285	53.2	54.2	1	1.8796	33.4	33.4	0	0	197.43	201.14	3.7111	1.8796
R26/267	58.8	58.3	-0.5	-0.850	34.2	34.7	0.5	1.4619	223.44	224.77	1.3388	0.5992
R30/350	41.1	41.1	0	0	29.5	28.2	-1.3	-4.406	134.71	128.78	-5.936	-4.406
R30/326	44.3	43.9	-0.4	-0.902	31.7	30.7	-1	-3.154	156.83	149.74	-6.286	-4.029
R30/306	48.2	47.5	-0.7	-1.452	32.1	31.9	-0.2	-0.623	171.91	168.36	-3.552	-2.066
R30/285	53.1	53.2	0.0999	0.1883	33.6	34	0.4	1.1904	198.24	200.97	2.7377	1.3810
R30/267	56.3	56.7	0.4	0.7104	34.9	35.6	0.7	2.0057	218.31	224.28	5.9611	2.7304
R34/350	41.6	40.1	-1.5	-3.605	29.6	28.1	-1.5	-5.067	136.81	125.20	-11.61	-8.490
R34/326	44.1	43.4	-0.7	-1.587	29.7	29.5	-0.2	-0.673	145.53	142.25	-3.274	-2.250
R34/306	46.3	46.2	-0.1	-0.215	32.5	32	-0.5	-1.538	167.19	164.26	-2.927	-1.751
R34/285	50.9	51.1	0.2	0.3929	34.5	34.1	-0.4	-1.159	195.11	193.61	-1.504	-0.771
R34/267	54.5	55.6	1.1	2.0183	35.9	35.7	-0.2	-0.557	217.39	220.54	3.1522	1.4500
R34/248	62.4	61.9	-0.5	-0.801	36.5	37.1	0.6	1.6438	253.06	255.16	2.0988	0.8293

*** COLUMN STATISTICS ***

	N	Mean	SD	CV%
1. IIC C/3cm	16	49.4375	6.4642	13.08
2. TEFO C/3cm	16	49.2625	6.7593	13.72
3. D	16	-0.1750	0.6578	375.87
4. %D	16	-0.4328	1.3816	319.23
5. IIC W/3cm	16	32.5125	2.3460	7.22
6. TEFO W/3cm	16	32.1875	2.8964	9.00
7. D	16	-0.3250	0.6708	206.41
8. %D	16	-1.1137	2.1529	193.30
9. IIC S/socm	16	180.0584	35.9988	19.99
10. TEFO S/socm	16	178.1572	40.0818	22.50
11. D	16	-1.9012	4.7480	249.74
12. %D	16	-1.5285	3.0223	197.73

TABLE 3

COMPARISON BETWEEN COLUMN No's 1 & 2 (16 Items)

Col. 1:- IIC C/3cm	
Mean	49.4375
s.d.	6.4642
Col. 2:- TEFD C/3cm	
Mean	49.2625
s.d.	6.7593
Test for two random samples from same population :	
Pooled s.d	6.8303
Standard error	2.4149
Snedecor's F	1.0934
Student's t for (MeanX = MeanY)	0.0725
Test for a sequence of identical pairs :	
Mean difference	-0.1750
Mean square difference	0.4362
s.d. of differences	0.6578
Student s t for (Xi-Yi) = 0	1.0304
LINEAR Correlation (Y = a + bX)	
a	-2.2269
b	1.0415
r square	0.9921

COMPARISON BETWEEN COLUMN No's 5 & 6 (16 Items)

Col. 5:- IIC W/3cm	
Mean	32.5125
s.d.	2.3460
Col. 6:- TEFD W/3cm	
Mean	32.1875
s.d.	2.8964
Test for two random samples from same population :	
Pooled s.d	2.7221
Standard error	0.9624
Snedecor's F	1.5242
Student's t for (MeanX = MeanY)	0.3377
Test for a sequence of identical pairs :	
Mean difference	-0.3250
Mean square difference	0.5275
s.d. of differences	0.6708
Student s t for (Xi-Yi) = 0	1.8764
LINEAR Correlation (Y = a + bX)	
a	-7.5181
b	1.2212
r square	0.9785

COMPARISON BETWEEN COLUMN No's 9 & 10 (16 Items)

Col. 9:-	IIC	S/socm	
	Mean		180.0584
	s.d.		35.9988
Col. 10:-	TEFO	S/socm	
	Mean		178.1572
	s.d.		40.0818

Test for two random samples from same population :			
	Pooled s.d		39.3444
	Standard error		13.9103
	Snedecor's F		1.2397
	Student's t for (MeanX = MeanY)		0.1367

Test for a sequence of identical pairs :			
	Mean difference		-1.9012
	Mean square difference		24.7488
	s.d. of differences		4.7480
	Student's t for (Xi-Yi) = 0		1.5508

LINEAR Correlation (Y = a + bX)			
	a		-21.9152
	b		1.1112
	r square		0.9959

*** STATISTICS FOR COLUMN 4 ***

No. of items	16.0000	
Mean	-0.4328	
Median	-0.8013	
Maximum	2.0183	
Minimum	-3.6058	
Mean Deviation	1.0268	
Mean Square Deviation	1.7095	
Standard Deviation	1.3816	
Coefficient of Variation	-319.2301	
Filliben's R test for Normality	0.9723	Yes
Grubb's T for Max an outlier	1.7741	No
Grubb's T for Min an outlier	2.2966	No
Mean Difference from 0.	-0.4328	
Mean Square Difference from 0.	1.9768	
Std Devn of Differences from 0.	1.4060	
Student's t for Mean = 0.	1.2132	

*** STATISTICS FOR COLUMN 8 ***

No. of items	16.0000	
Mean	-1.1137	
Median	-1.1594	
Maximum	2.0057	
Minimum	-5.0676	
Mean Deviation	1.6698	
Mean Square Deviation	4.3453	
Standard Deviation	2.1529	
Coefficient of Variation	-193.3040	
Filliben's R test for Normality	0.9812	Yes
Grubb's T for Max an outlier	1.4490	No
Grubb's T for Min an outlier	1.8365	No
Mean Difference from 0.	-1.1137	
Mean Square Difference from 0.	5.5858	
Std Devn of Differences from 0.	2.3634	
Student's t for Mean = 0.	2.0036	

*** STATISTICS FOR COLUMN 12 ***

TABLE 6

*** STATISTICS FOR COLUMN 12 ***

No. of items	16.0000	
Mean	-1.5285	
Median	-1.8574	
Maximum	2.7305	
Minimum	-8.4906	
Mean Deviation	2.3498	
Mean Square Deviation	8.5636	
Standard Deviation	3.0223	
Coefficient of Variation	-197.7272	
Filliben's R test for Normality	0.9742	Yes
Grubb's T for Max an outlier	1.4092	No
Grubb's T for Min an outlier	2.3035	No
Mean Difference from 0.	-1.5285	
Mean Square Difference from 0.	10.9000	
Std Devn of Differences from 0.	3.3015	
Student's t for Mean = 0.	1.9588	

Inter Laboratory Comparison IIC/TEFO

1x1 RIB : 14 Gauge

Finish 2 - Jet Dyed Compacted (JDH) - REFERENCE STATE

Sample No	IIC		TEFO		IIC		TEFO	
	C/3cm	95%CL	C/3cm	95%CL	W/3cm	95%CL	W/3cm	95%CL
R26/350	42	0.6	41.5	0.2	27.8	0.5	27.8	0.3
R26/326	45.6	0.5	45.6	0.2	28.5	0.5	28.8	0.2
R26/306	48.9	0.8	48.9	0.5	30.4	0.5	30.6	0.2
R26/285	54.5	0.7	54.8	0.2	31.7	0.5	32.1	0.1
R26/267	57.6	1.3	59.2	0.3	33.4	0.4	33.5	0.2
R30/350	42.6	0.8	n.a.	n.a.	27.6	0.5	n.a.	n.a.
R30/326	44.7	0.5	44	0.3	28.8	0.7	30.3	0.3
R30/306	48	1	n.a.	n.a.	31	0.5	n.a.	n.a.
R30/285	53.2	0.8	53	0.3	32.9	0.5	33	0.3
R30/267	56.5	0.6	n.a.	n.a.	34.6	0.4	n.a.	n.a.
R34/350	40.7	0.3	39.8	0.2	27.8	0.9	28.2	0.4
R34/326	44	0.6	n.a.	n.a.	28.2	0.7	n.a.	n.a.
R34/306	47.7	1	46.9	0.2	30	0.8	31.2	0.2
R34/285	51.2	1.2	51.3	0.3	33.2	0.6	33.7	0.3
R34/267	54.8	1.1	55.3	0.5	34.4	0.6	35	0.2
R34/248	62.8	1.1	n.a.	n.a.	35.7	0.5	n.a.	n.a.

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(1) IIC Data - Mean of TEN measurements (2*5 Replications)
(2) TEFO Data - Mean of TWENTY measurements (4*5 Replications)
(3) 95%CL = 95% Confidence Limits

*** COLUMN STATISTICS ***

		N	Mean	SD	CV%
1.	IIC C/3cm	16	49.6750	6.4100	12.90
2.	95%CL	16	0.8063	0.2863	35.51
3.	TEFO C/3cm	11	49.1182	6.1675	12.56
4.	95%CL	11	0.2909	0.1136	39.06
5.	IIC W/3cm	16	31.0000	2.7525	8.88
6.	95%CL	16	0.5688	0.1401	24.63
7.	TEFO W/3cm	11	31.2909	2.3964	7.66
8.	95%CL	11	0.2455	0.0820	33.42

Inter Laboratory Comparison IIC/TEFO

1x1 RIB : 14 Gauge

Finish 2 - Jet Dyed Compacted (JDH) - REFERENCE STATE

Sample No	IIC				TEFO				IIC				TEFO			
	C/3cm	C/3cm	D	%D	W/3cm	W/3cm	D	%D	S/socm	S/socm	D	%D	S/socm	S/socm	D	%D
R26/350	42	41.5	-0.5	-1.190	27.8	27.8	0	0	129.73	128.18	-1.544	-1.190				
R26/326	45.6	45.6	0	0	28.5	28.8	0.3	1.0526	144.4	145.92	1.52	1.0526				
R26/306	48.9	48.9	0	0	30.4	30.6	0.2	0.6578	165.17	166.26	1.0866	0.6578				
R26/285	54.5	54.8	0.3	0.5504	31.7	32.1	0.4	1.2618	191.96	195.45	3.4922	1.8192				
R26/267	57.6	59.2	1.6	2.7777	33.4	33.5	0.1	0.2994	213.76	220.35	6.5955	3.0854				
R30/350	42.6	n.a.	n.a.	n.a.	27.6	n.a.	n.a.	n.a.	130.64	n.a.	n.a.	n.a.				
R30/326	44.7	44	-0.7	-1.565	28.8	30.3	1.5	5.2083	143.04	148.13	5.0933	3.5607				
R30/306	48	n.a.	n.a.	n.a.	31	n.a.	n.a.	n.a.	165.33	n.a.	n.a.	n.a.				
R30/285	53.2	53	-0.2	-0.375	32.9	33	0.1	0.3039	194.47	194.33	-0.142	-0.073				
R30/267	56.5	n.a.	n.a.	n.a.	34.6	n.a.	n.a.	n.a.	217.21	n.a.	n.a.	n.a.				
R34/350	40.7	39.8	-0.9	-2.211	27.8	28.2	0.4	1.4388	125.71	124.70	-1.011	-0.804				
R34/326	44	n.a.	n.a.	n.a.	28.2	n.a.	n.a.	n.a.	137.86	n.a.	n.a.	n.a.				
R34/306	47.7	46.9	-0.8	-1.677	30	31.2	1.2	4	159	162.58	3.5866	2.2557				
R34/285	51.2	51.3	0.0999	0.1953	33.2	33.7	0.5	1.5060	188.87	192.09	3.2188	1.7042				
R34/267	54.8	55.3	0.5	0.9124	34.4	35	0.6	1.7441	209.45	215.05	5.5977	2.6725				
R34/248	62.8	n.a.	n.a.	n.a.	35.7	n.a.	n.a.	n.a.	249.10	n.a.	n.a.	n.a.				

*** COLUMN STATISTICS ***

	N	Mean	SD	CV%
1. IIC C/3cm	16	49.6750	6.4100	12.90
2. TEFO C/3cm	11	49.1182	6.1675	12.56
3. D	11	-0.0545	0.7147	1310.20
4. %D	11	-0.2350	1.4141	601.75
5. IIC W/3cm	16	31.0000	2.7525	8.88
6. TEFO W/3cm	11	31.2909	2.3964	7.66
7. D	11	0.4818	0.4708	97.71
8. %D	11	1.5885	1.6145	101.64
9. IIC S/socm	16	172.8592	37.3966	21.63
10. TEFO S/socm	11	172.0985	33.4242	19.42
11. D	11	2.4994	2.7277	109.13
12. %D	11	1.3401	1.5653	116.81

COMPARISON BETWEEN COLUMN No's 1 & 2 (11 Items)

Col. 1:- IIC C/3cm
 Mean 49.1727
 s.d. 5.5645

Col. 2:- TEFO C/3cm
 Mean 49.1182
 s.d. 6.1675

Test for two random samples from same population :
 Pooled s.d 6.1604
 Standard error 2.6268
 Snedecor's F 1.2284
 Student's t for (MeanX = MeanY) 0.0208

Test for a sequence of identical pairs :
 Mean difference -0.0545
 Mean square difference 0.4673
 s.d. of differences 0.7147
 Student's t for $(X_i - Y_i) = 0$ 0.2414

LINEAR Correlation ($Y = a + bX$)
 a -5.2655
 b 1.1060
 r square 0.9957

COMPARISON BETWEEN COLUMN No's 5 & 6 (11 Items)

Col. 5:- IIC W/3cm
 Mean 30.8091
 s.d. 2.4246

Col. 6:- TEFO W/3cm
 Mean 31.2909
 s.d. 2.3964

Test for two random samples from same population :
 Pooled s.d 2.5282
 Standard error 1.0780
 Snedecor's F 1.0237
 Student's t for (MeanX = MeanY) 0.4469

Test for a sequence of identical pairs :
 Mean difference 0.4818
 Mean square difference 0.4336
 s.d. of differences 0.4708
 Student's t for $(X_i - Y_i) = 0$ 3.2364

LINEAR Correlation ($Y = a + bX$)
 a 1.4189
 b 0.9696
 r square 0.9624

COMPARISON BETWEEN COLUMN No's 9 & 10 (11 Items)

Col. 9:- IIC	S/sqcm	
Mean		169.5991
s.d.		31.6486
Col. 10:- TEFO	S/sqcm	
Mean		172.0985
s.d.		33.4242
Test for two random samples from same population :		
Pooled s.d		34.1372
Standard error		14.5562
Snedecor's F		1.1154
Student's t for (MeanX = MeanY)		0.1717
Test for a sequence of identical pairs :		
Mean difference		2.4994
Mean square difference		13.0108
s.d. of differences		2.7277
Student's t for (Xi-Yi) = 0		2.8976
LINEAR Correlation (Y = a + bX)		
a		-6.6527
b		1.0540
r square		0.9960

*** STATISTICS FOR COLUMN 4 ***

No. of items	11.0000	
Mean	-0.2350	
Median	-0.1880	
Maximum	2.7778	
Minimum	-2.2113	
Mean Deviation	1.0629	
Mean Square Deviation	1.8178	
Standard Deviation	1.4141	
Coefficient of Variation	-601.7528	
Filliben's R test for Normality	0.9701	Yes
Grubb's T for Max an outlier	2.1306	No
Grubb's T for Min an outlier	1.3976	No
Mean Difference from 0.	-0.2350	
Mean Square Difference from 0.	1.8730	
Std Devn of Differences from 0.	1.3686	
Student's t for Mean = 0.	0.5255	

*** STATISTICS FOR COLUMN 8 ***

No. of items	11.0000	
Mean	1.5885	
Median	1.1572	
Maximum	5.2083	
Minimum	0.0000	
Mean Deviation	1.1249	
Mean Square Deviation	2.3697	
Standard Deviation	1.6145	
Coefficient of Variation	101.6409	
Filliben's R test for Normality	0.9014	No
Grubb's T for Max an outlier	2.2421	Yes
Grubb's T for Min an outlier	0.9839	No
Mean Difference from 0.	1.5885	
Mean Square Difference from 0.	4.8929	
Std Devn of Differences from 0.	2.2120	
Student's t for Mean = 0.	3.1112	

TABLE 12

*** STATISTICS FOR COLUMN 12 ***

No. of items	11.0000	
Mean	1.3401	
Median	1.3785	
Maximum	3.5608	
Minimum	-1.1905	
Mean Deviation	1.2832	
Mean Square Deviation	2.2274	
Standard Deviation	1.5653	
Coefficient of Variation	116.8067	
Filliben's R test for Normality	0.9890	Yes
Grubb's T for Max an outlier	1.4187	No
Grubb's T for Min an outlier	1.6167	No
Mean Difference from 0.	1.3401	
Mean Square Difference from 0.	4.0232	
Std Devn of Differences from 0.	2.0058	
Student's t for Mean = 0.	2.7073	

Inter Laboratory Comparison IIC/TEFO

1x1 RIB : 14 Gauge

Finish 2 - Mercerised Jet Dyed Compacted (MJDH) - REFERENCE STATE

Sample No	IIC		TEFO		IIC		TEFO	
	C/3cm	95%CL	C/3cm	95%CL	W/3cm	95%CL	W/3cm	95%CL
R26/350	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R26/326	45.4	0.5	44	0.2	34.1	0.2	34.1	0.3
R26/306	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R26/285	54.7	0.6	52.6	0.2	37.5	0.4	38	0.1
R26/267	57.4	0.6	56.7	0.2	38.7	0.5	38.6	0.2
R30/350	40.1	0.7	39.2	0.2	34	0.8	33.6	0.3
R30/326	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R30/306	47.5	0.8	43.8	0.3	37.5	0.6	38.1	0.2
R30/285	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R30/267	56	0.8	55.4	0.2	40.5	0.7	40.4	0.1
R34/350	41.5	0.8	39.2	0.3	32.9	0.8	33.5	0.5
R34/326	43.5	0.5	41.9	0.3	35.7	0.6	35.5	0.4
R34/306	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R34/285	49.9	0.5	48.3	0.3	40.6	0.6	41	0.2
R34/267	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R34/248	61.5	0.8	59.7	0.4	43.8	0.3	43.4	0.2

- =====
(1) IIC Data - Mean of TEN measurements (2*5 Replications)
(2) TEFO Data - Mean of TWENTY measurements (4*5 Replications)
(3) 95%CL = 95% Confidence Limits

*** COLUMN STATISTICS ***

		N	Mean	SD	CV%
1.	IIC C/3cm	10	49.7500	7.3364	14.75
2.	95%CL	10	0.6600	0.1350	20.45
3.	TEFO C/3cm	10	48.0800	7.5591	15.72
4.	95%CL	10	0.2600	0.0699	26.89
5.	IIC W/3cm	10	37.5300	3.4632	9.23
6.	95%CL	10	0.5500	0.2014	36.62
7.	TEFO W/3cm	10	37.6200	3.3980	9.03
8.	95%CL	10	0.2500	0.1269	50.77

Inter Laboratory Comparison IIC/TEFO

1x1 RIB : 14 Gauge

Finish 3 - Mercerised Jet Dved Compacted (MJDH) - REFERENCE STATE

Sample No	IIC		TEFO		IIC		TEFO		IIC		TEFO	
	C/3cm	C/3cm	D	%D	W/3cm	W/3cm	D	%D	S/sacm	S/sacm	D	%D
R26/350	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R26/326	45.4	44	-1.4	-3.083	34.1	34.1	0	0	172.01	166.71	-5.304	-3.083
R26/306	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R26/285	54.7	52.6	-2.1	-3.839	37.5	38	0.5	1.3333	227.91	222.08	-5.827	-2.556
R26/267	57.4	56.7	-0.7	-1.219	38.7	38.6	-0.099	-0.258	246.82	243.18	-3.64	-1.474
R30/350	40.1	39.2	-0.9	-2.244	34	33.6	-0.4	-1.176	151.48	146.34	-5.142	-3.394
R30/326	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R30/306	47.5	43.8	-3.7	-7.789	37.5	38.1	0.6	1.6	197.91	185.42	-12.49	-6.314
R30/285	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R30/267	56	55.4	-0.6	-1.071	40.5	40.4	-0.1	-0.246	252	248.68	-3.315	-1.315
R34/350	41.5	39.2	-2.3	-5.542	32.9	33.5	0.6	1.8237	151.70	145.91	-5.794	-3.819
R34/326	43.5	41.9	-1.6	-3.678	35.7	35.5	-0.2	-0.560	172.55	165.27	-7.277	-4.217
R34/306	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R34/285	49.9	48.3	-1.6	-3.206	40.6	41	0.4	0.9852	225.10	220.03	-5.071	-2.252
R34/267	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R34/248	61.5	59.7	-1.8	-2.926	43.8	43.4	-0.4	-0.913	299.3	287.88	-11.41	-3.813

*** COLUMN STATISTICS ***

		N	Mean	SD	CV%
1.	IIC C/3cm	10	49.7500	7.3364	14.75
2.	TEFO C/3cm	10	48.0800	7.5591	15.72
3.	D	10	-1.6700	0.9117	54.59
4.	%D	10	-3.4601	1.9990	57.77
5.	IIC W/3cm	10	37.5300	3.4632	9.23
6.	TEFO W/3cm	10	37.6200	3.3980	9.03
7.	D	10	0.0900	0.3985	442.74
8.	%D	10	0.2587	1.0865	419.99
9.	IIC S/sacm	10	209.6818	48.8256	23.29
10.	TEFO S/sacm	10	203.1534	48.3960	23.82
11.	D	10	-6.5283	3.0783	47.15
12.	%D	10	-3.2243	1.4673	45.51

COMPARISON BETWEEN COLUMN No's 1 & 2 (10 Items)

Col. 1:-	IIC	C/3cm	
	Mean		49.7500
	s.d.		7.3364
Col. 2:-	TEFO	C/3cm	
	Mean		48.0800
	s.d.		7.5591
Test for two random samples from same population :			
	Pooled s.d		7.8515
	Standard error		3.5113
	Snedecor's F		1.0616
	Student's t for (MeanX = MeanY)		0.4756
Test for a sequence of identical pairs :			
	Mean difference		-1.6700
	Mean square difference		3.5370
	s.d. of differences		0.9117
	Student's t for (Xi-Yi) = 0		5.4951
LINEAR Correlation (Y = a + bX)			
	a		-2.8187
	b		1.0231
	r square		0.9860

COMPARISON BETWEEN COLUMN No's 5 & 6 (10 Items)

Col. 5:-	IIC	W/3cm	
	Mean		37.5300
	s.d.		3.4632
Col. 6:-	TEFO	W/3cm	
	Mean		37.6200
	s.d.		3.3980
Test for two random samples from same population :			
	Pooled s.d		3.6163
	Standard error		1.6173
	Snedecor's F		1.0387
	Student's t for (MeanX = MeanY)		0.0556
Test for a sequence of identical pairs :			
	Mean difference		0.0900
	Mean square difference		0.1510
	s.d. of differences		0.3985
	Student's t for (Xi-Yi) = 0		0.6776
LINEAR Correlation (Y = a + bX)			
	a		1.0382
	b		0.9747
	r square		0.9869

COMPARISON BETWEEN COLUMN No's 9 & 10 (10 Items)

Col. 9:- IIC	S/sqcm	
Mean		209.6818
s.d.		48.8256
Col. 10:- TEFO	S/sqcm	
Mean		203.1534
s.d.		48.3960
Test for two random samples from same population :		
Pooled s.d		51.2408
Standard error		22.9156
Snedecor's F		1.0178
Student's t for (MeanX = MeanY)		0.2849
Test for a sequence of identical pairs :		
Mean difference		-6.5283
Mean square difference		51.1474
s.d. of differences		3.0783
Student's t for (Xi-Yi) = 0		6.3623
LINEAR Correlation (Y = a + bX)		
a		-4.2750
b		0.9893
r square		0.9961

*** STATISTICS FOR COLUMN 4 ***

No. of items	10.0000	
Mean	-3.4601	
Median	-3.2064	
Maximum	-1.0714	
Minimum	-7.7895	
Mean Deviation	1.4017	
Mean Square Deviation	3.5964	
Standard Deviation	1.9990	
Coefficient of Variation	-57.7726	
Filliben's R test for Normality	0.9484	Yes
Grubb's T for Max an outlier	1.1949	No
Grubb's T for Min an outlier	2.1658	No
Mean Difference from 0.	-3.4601	
Mean Square Difference from 0.	15.5688	
Std Devn of Differences from 0.	3.9457	
Student's t for Mean = 0.	5.1928	

*** STATISTICS FOR COLUMN 8 ***

No. of items	10.0000	
Mean	0.2587	
Median	-0.2469	
Maximum	1.8237	
Minimum	-1.1765	
Mean Deviation	0.9415	
Mean Square Deviation	1.0625	
Standard Deviation	1.0865	
Coefficient of Variation	419.9905	
Filliben's R test for Normality	0.9685	Yes
Grubb's T for Max an outlier	1.4404	No
Grubb's T for Min an outlier	1.3209	No
Mean Difference from 0.	0.2587	
Mean Square Difference from 0.	1.1294	
Std Devn of Differences from 0.	1.0627	
Student's t for Mean = 0.	0.7143	

*** STATISTICS FOR COLUMN 12 ***

No. of items	10.0000	
Mean	-3.2243	
Median	-3.3945	
Maximum	-1.3157	
Minimum	-6.3141	
Mean Deviation	1.0875	
Mean Square Deviation	1.9377	
Standard Deviation	1.4673	
Coefficient of Variation	-45.5074	
Filliben's R test for Normality	0.9666	yes
Grubb's T for Max an outlier	1.3008	No
Grubb's T for Min an outlier	2.1058	No
Mean Difference from 0.	-3.2243	
Mean Square Difference from 0.	12.3339	
Std Devn of Differences from 0.	3.5120	
Student's t for Mean = 0.	6.5923	

IIC/TEFO Finish 1 WD2 :- COURSES/3CM

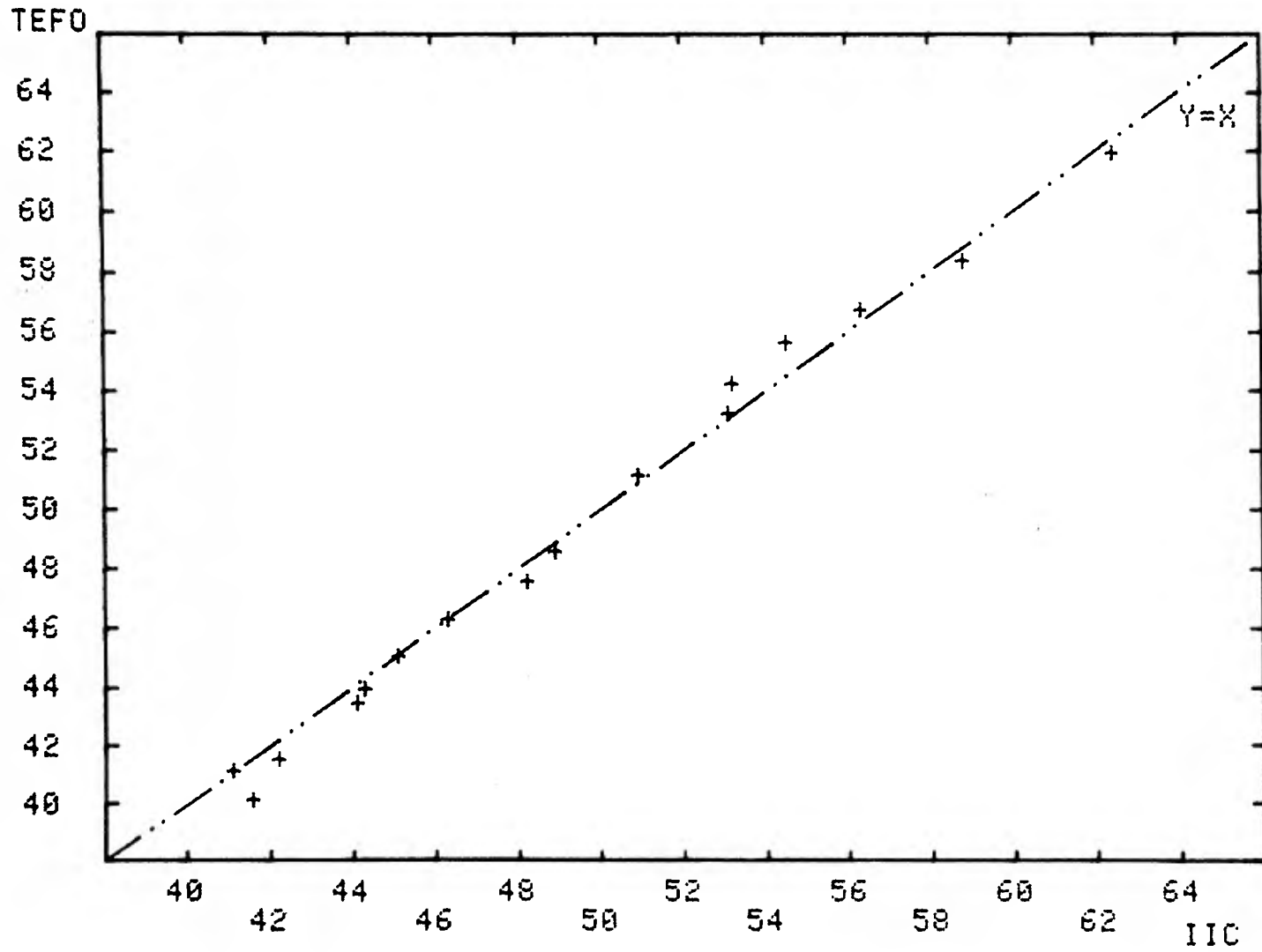


FIGURE 1

IIC/TEFO Finish 1 WD2 :- WALES/3CM

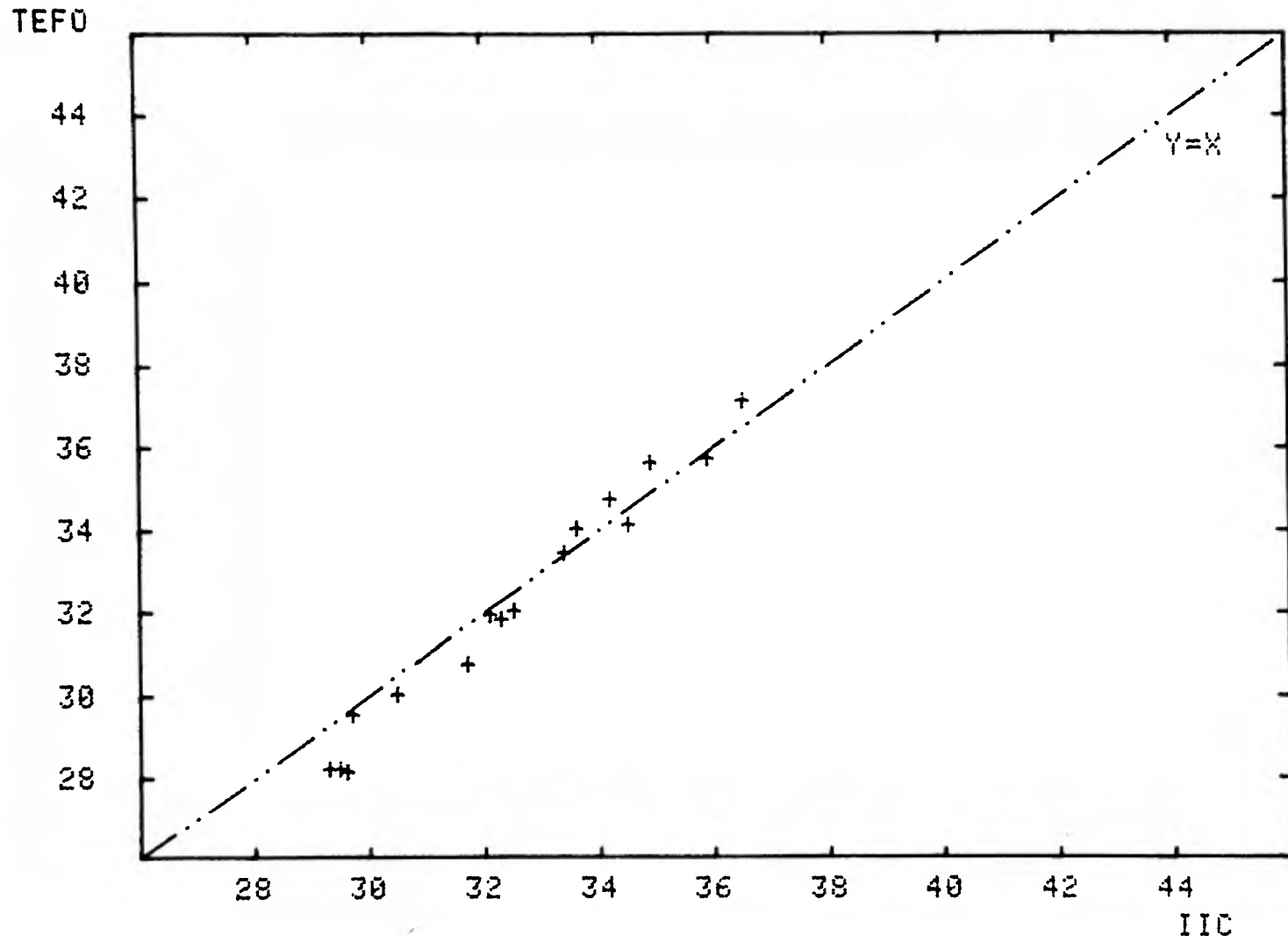


FIGURE 2

IIC/TEFO Finish 1 WD2 :- STITCHES/SQCM

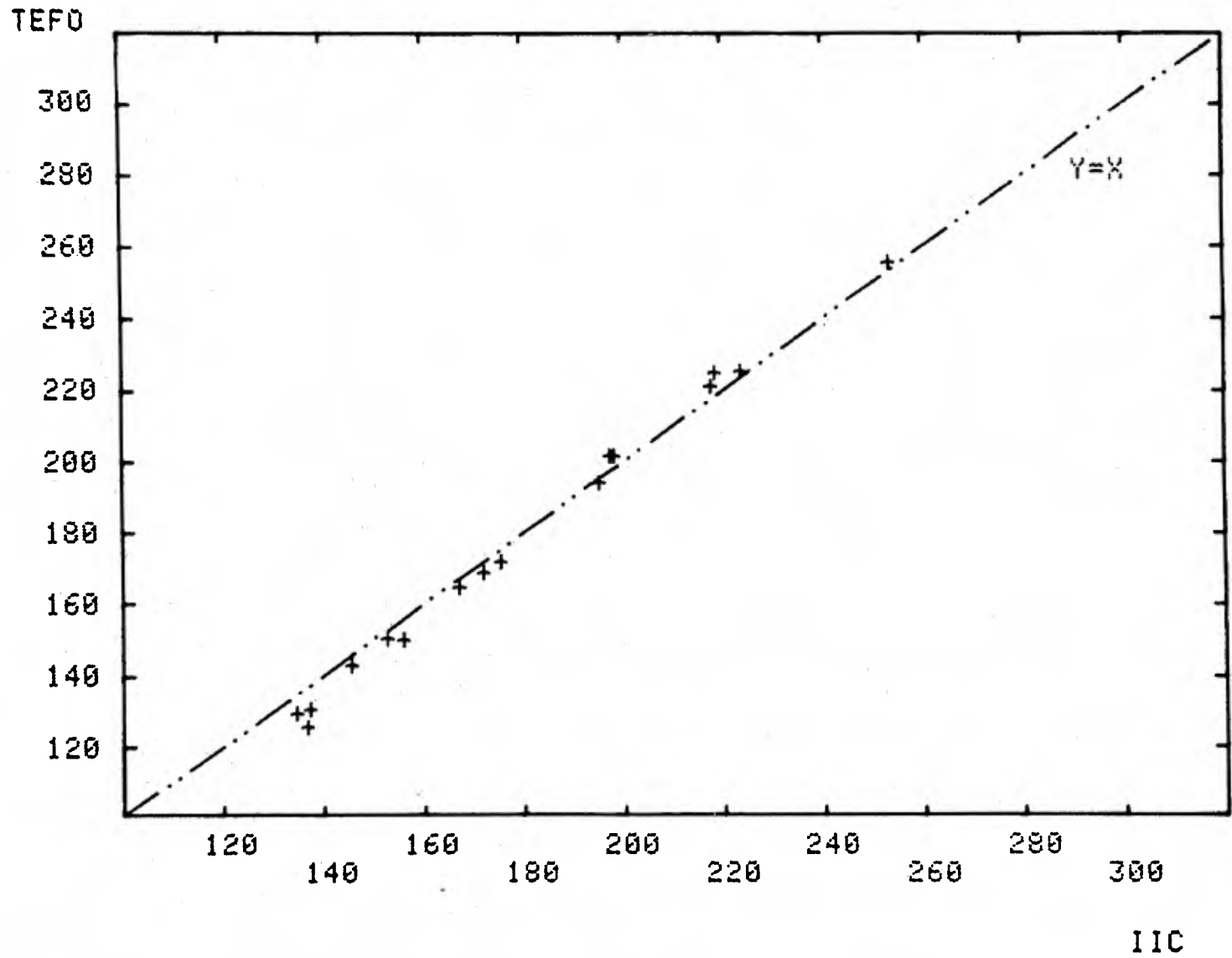


FIGURE 3

IIC/TEFO Finish 2 JDH :- COURSES/3CM

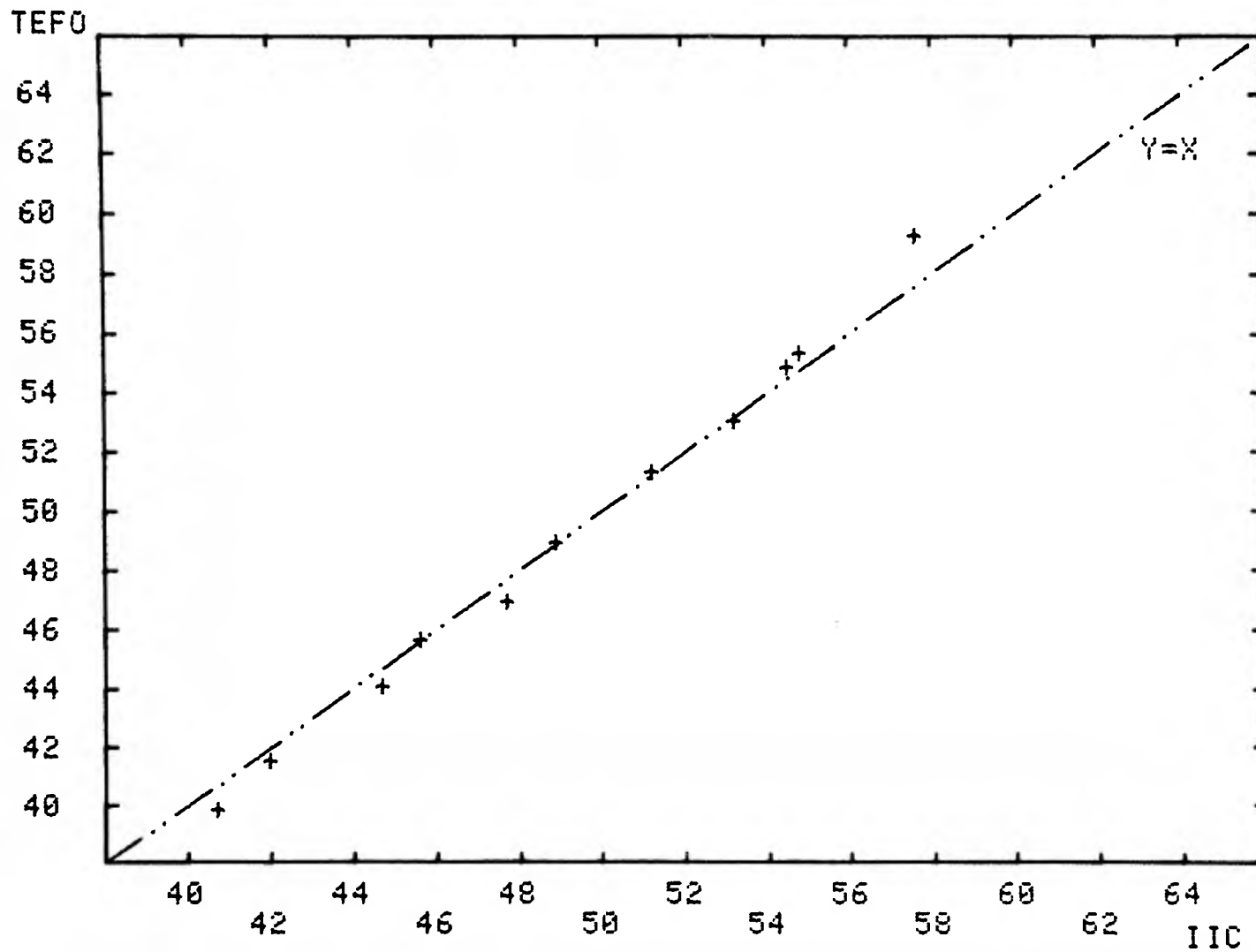


FIGURE 4

IIC/TEFO Finish 2 JDH :- WALES/3CM

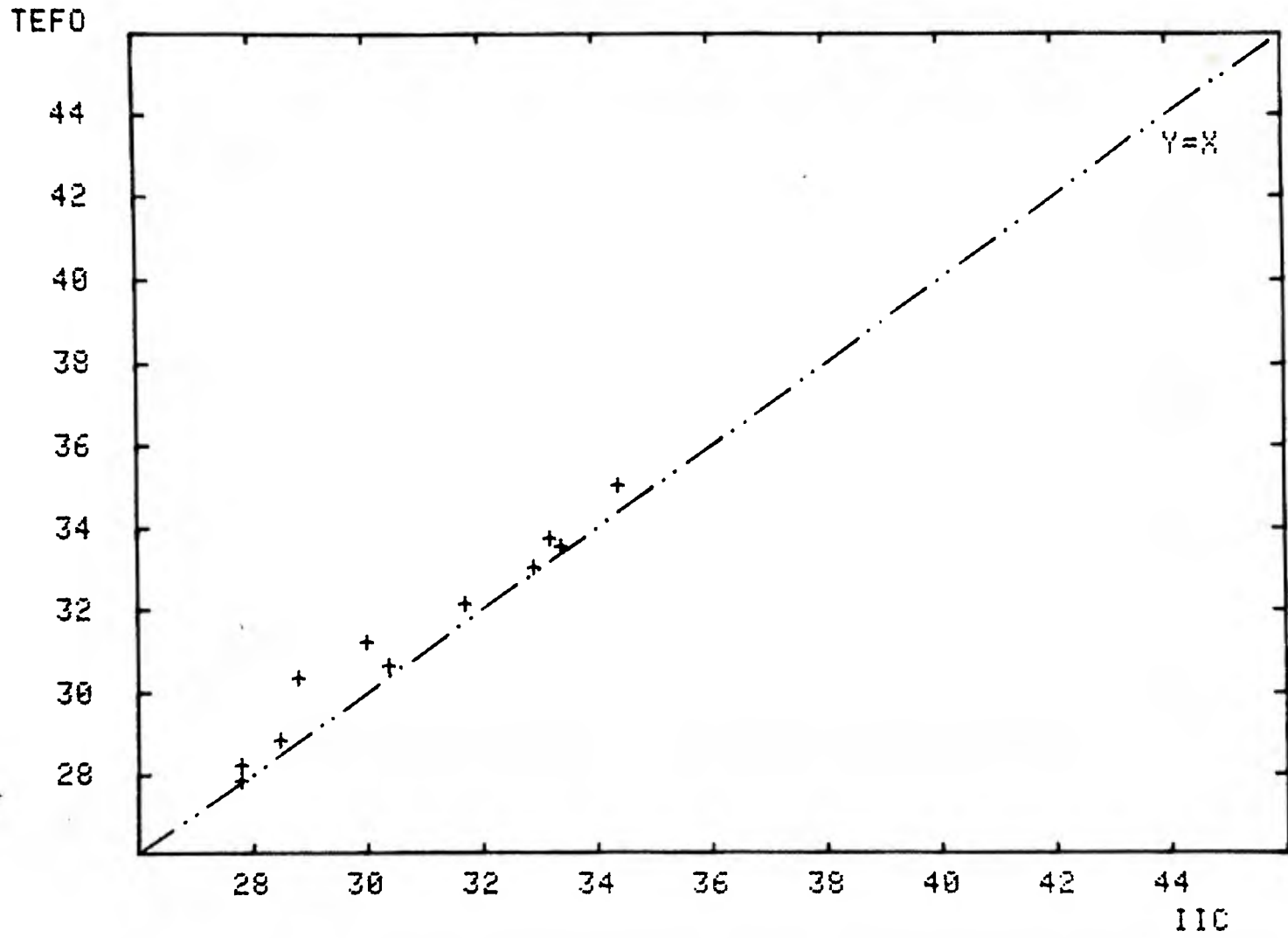


FIGURE 5

IIC/TEFO Finish 2 JDH :- STITCHES/SQCM

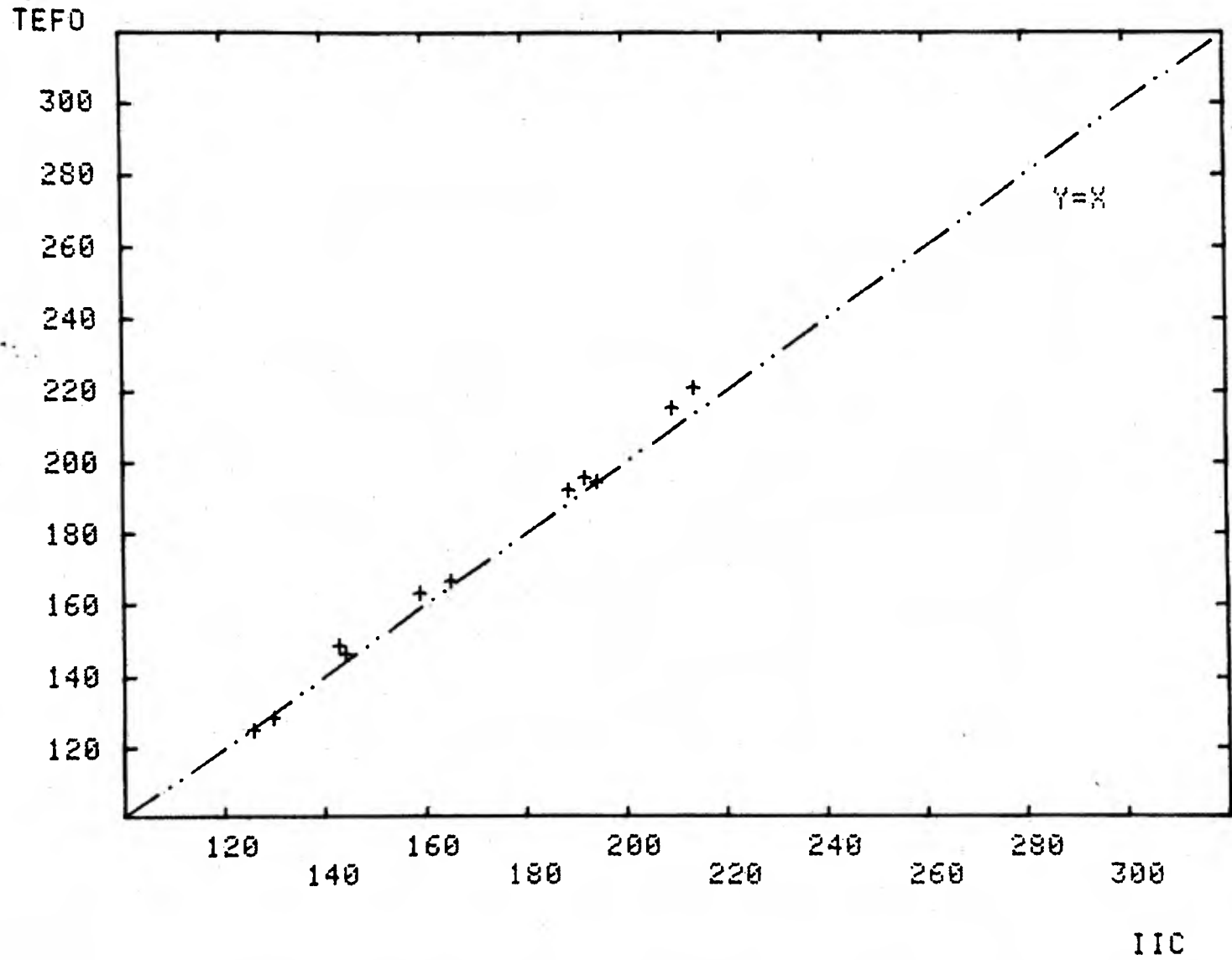


FIGURE 6

IIC/TEFO Finish 3 MJDH :- COURSES/3CM

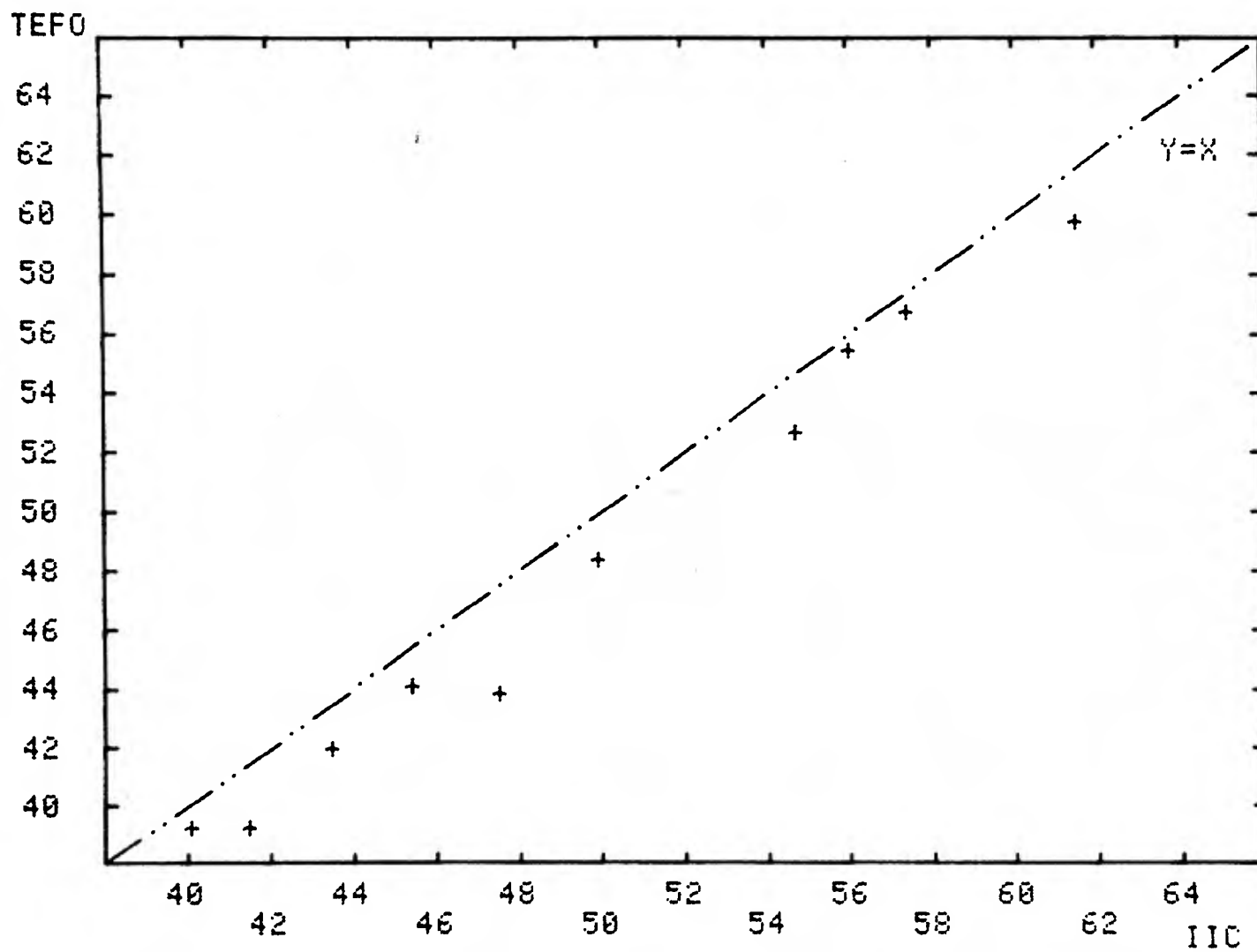


FIGURE 7

IIC/TEFO Finish 3 MJDH :- WALES/3CM

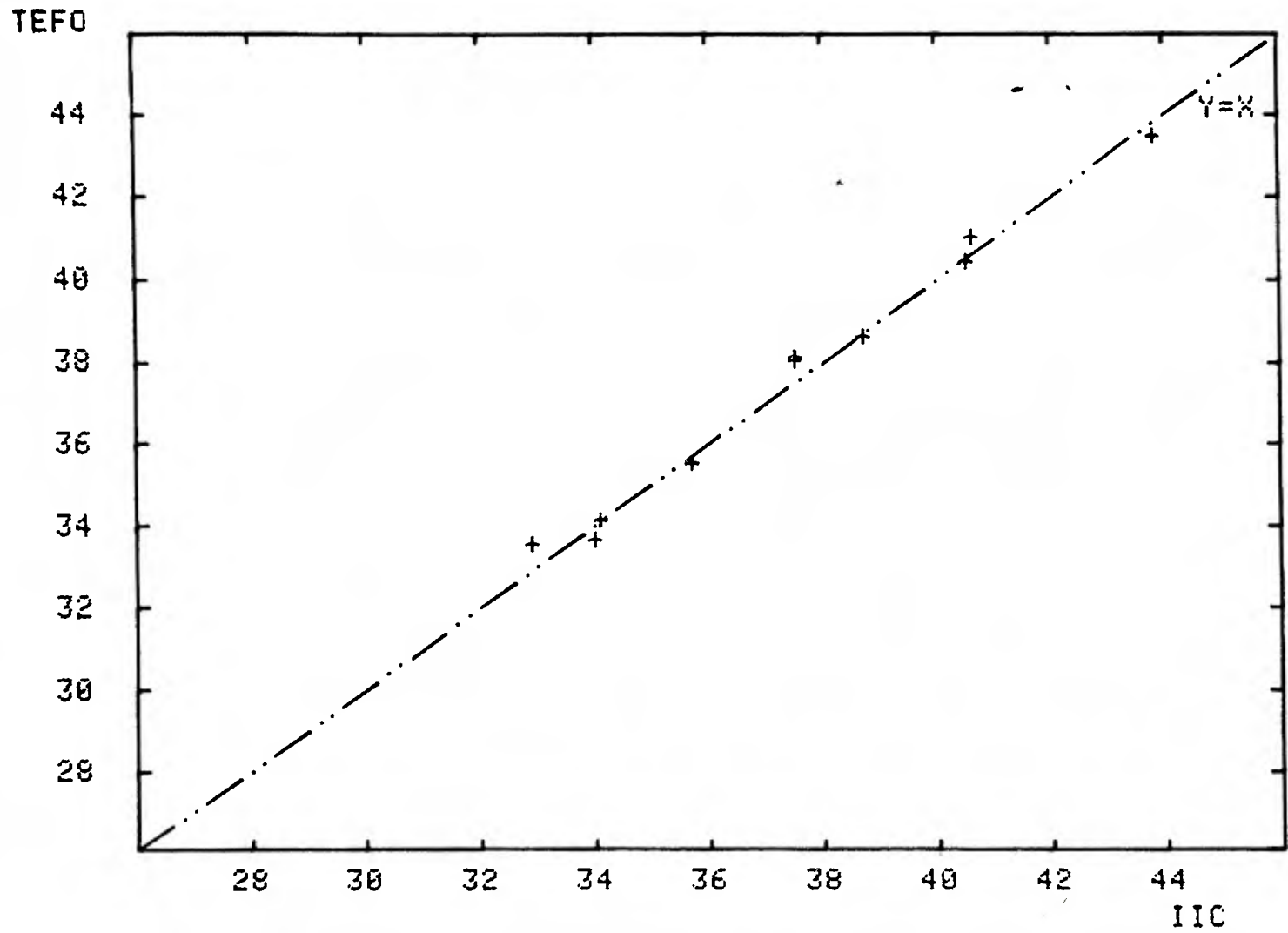


FIGURE 8

IIC/TEFO Finish 3 MJDH :- STITCHES/SQCM

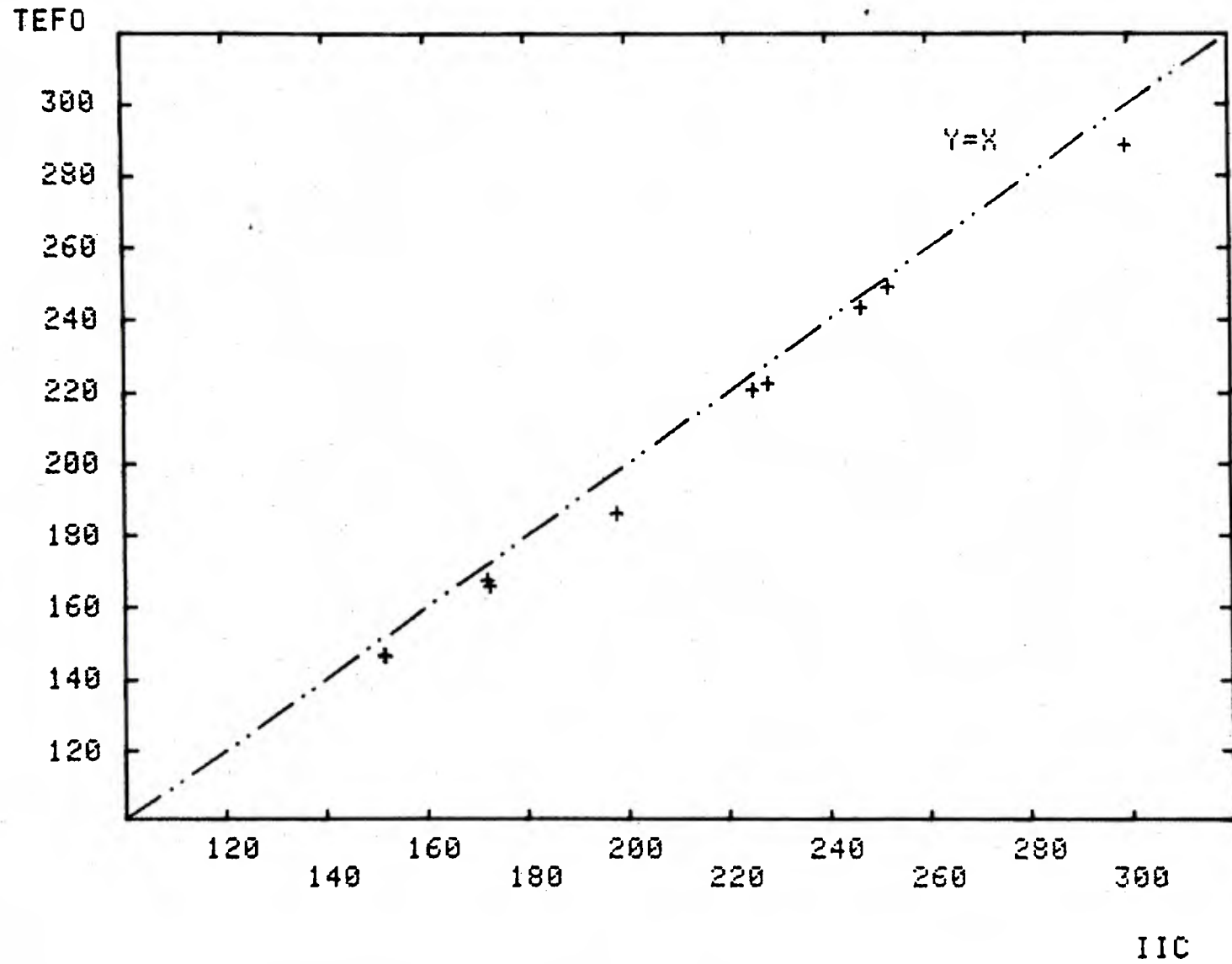


FIGURE 9

SELECT BEST FIT

EQUATION	A	B	RES ERROR	R-SQUARE	MAX DEVIATION
$Y = A * X$	0.99717		0.47585	0.99028	1.38230
$Y = A + B * X$	-2.22689	1.04150	0.38645	0.99211	1.06488
$Y = A * \text{EXP}(B * X)$	17.39259	0.02088	0.91308	0.98135	2.11581
$Y = 1 / (A + B * X)$	0.04157	-0.00042	2.21232	0.95481	4.01829
$Y = A + B / X$	102.41173	-2587.10861	0.54898	0.98879	1.63495
$Y = A + B * \text{LOG}(X)$	-154.50893	52.34485	0.29613	0.99395	1.09503
$Y = A * X \uparrow B$	0.80981	1.05305	0.40466	0.99173	1.03671
$Y = X / (A + B * X)$	1.06475	-0.00122	0.43808	0.99105	1.21698

EQUATION $Y = A + B * \text{LOG}(X)$ HAS MAXIMUM R-SQUAREEQUATION $Y = A * X \uparrow B$ HAS MINIMUM MAXIMUM ABSOLUTE RESIDUAL

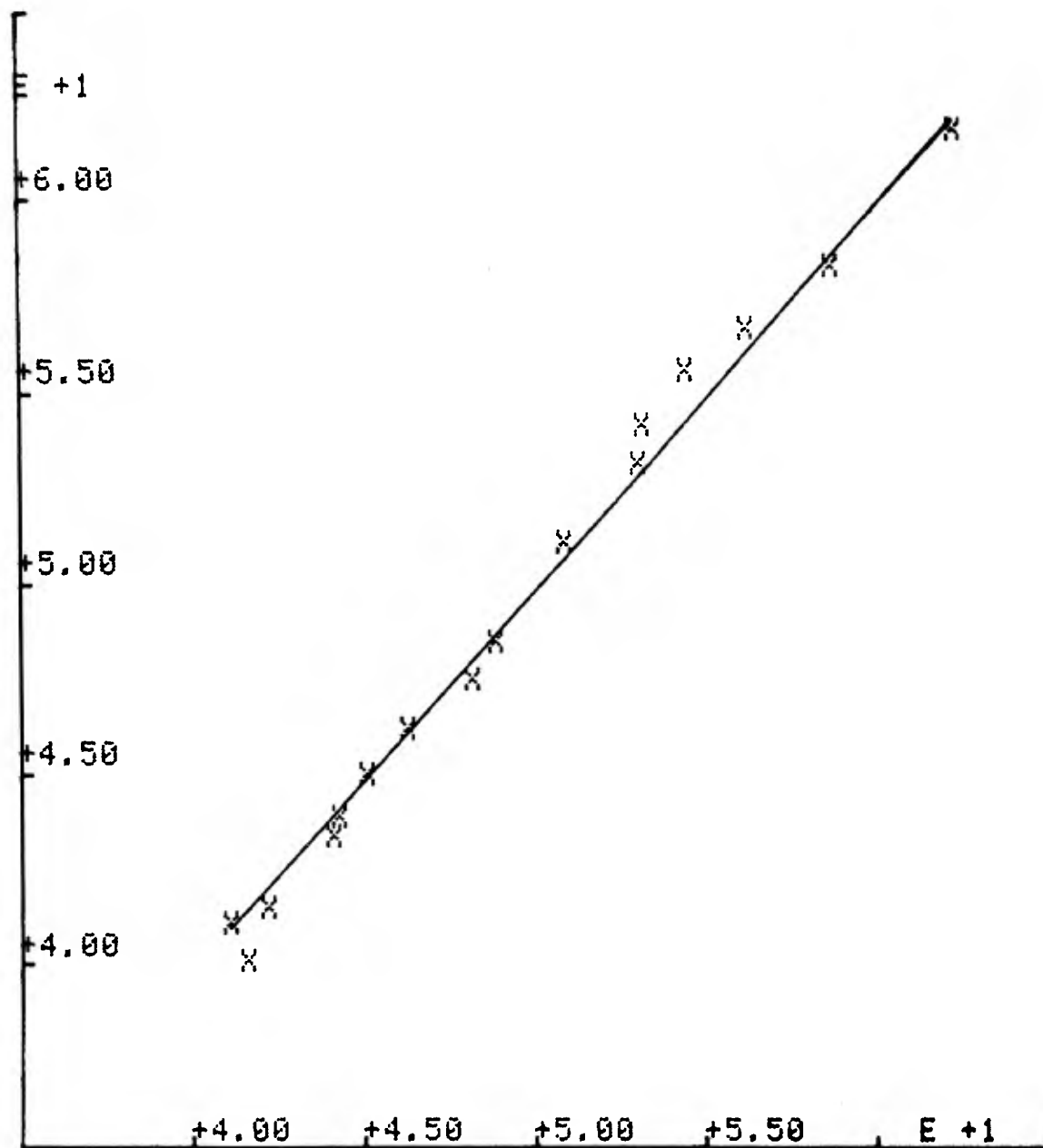
$$Y = A * X$$

$$A = 0.997170784353$$

$$R\text{-SQUARE} = 0.990279005178$$

$$\text{RES ERROR} = 0.475854847794$$

$$\text{MAX}(\text{ABS}(\text{RESIDUAL})) = 1.38230462908$$



RESIDUALS FOR EQUATION : $Y = A * X$

X	Y	ESTIMATE	RESIDUAL
42.2	41.5	42.0906070997	-0.580607099692
45.1	44.5	44.9724023743	0.027597622556842
48.9	48.5	48.7616513549	-0.261651354857
53.2	54.2	53.0494957276	1.15051427243
59.3	59.3	59.63364212	-0.333642119951
41.1	41.1	40.9837192369	0.116280763096
44.3	43.9	44.1746657460	-0.274665746034
48.2	47.5	48.0636319059	-0.56363190581
53.1	53.2	52.9497696491	0.250231350861
56.3	56.7	56.1407151591	0.552384840932
41.5	40.1	41.4823046291	-1.39230462908
44.1	43.4	43.97523159	-0.575231599963
46.3	46.2	46.1690073155	0.030992694607
50.9	51.1	50.7599929236	0.340007076438
54.5	55.9	54.3459077472	1.25419225277
62.4	61.9	62.2234569436	-0.323456943621

SELECT BEST FIT

EQUATION	A	B	RES ERROR	R-SQUARE	MAX DEVIATION
$Y = A * X$	0.99113		0.50728	0.94356	1.23736
$Y = A + B * X$	-7.51806	1.22124	0.19350	0.97847	0.74724
$Y = A * \text{EXP}(B * X)$	9.30257	0.03806	0.22481	0.97499	0.77734
$Y = 1 / (A + B * X)$	0.07005	-0.00119	0.29350	0.96735	0.97013
$Y = A + B / X$	71.84986	-1283.23658	0.20244	0.97748	0.85676
$Y = A + B * \text{LOG}(X)$	-105.87965	39.68380	0.18932	0.97894	0.80605
$Y = A * X \uparrow B$	0.43158	1.23824	0.19726	0.97805	0.74675
$Y = X / (A + B * X)$	1.25793	-0.00757	0.20295	0.97742	0.74885

EQUATION $Y = A + B * \text{LOG}(X)$ HAS MAXIMUM R-SQUARE

EQUATION $Y = A * X \uparrow B$ HAS MINIMUM MAXIMUM ABSOLUTE RESIDUAL

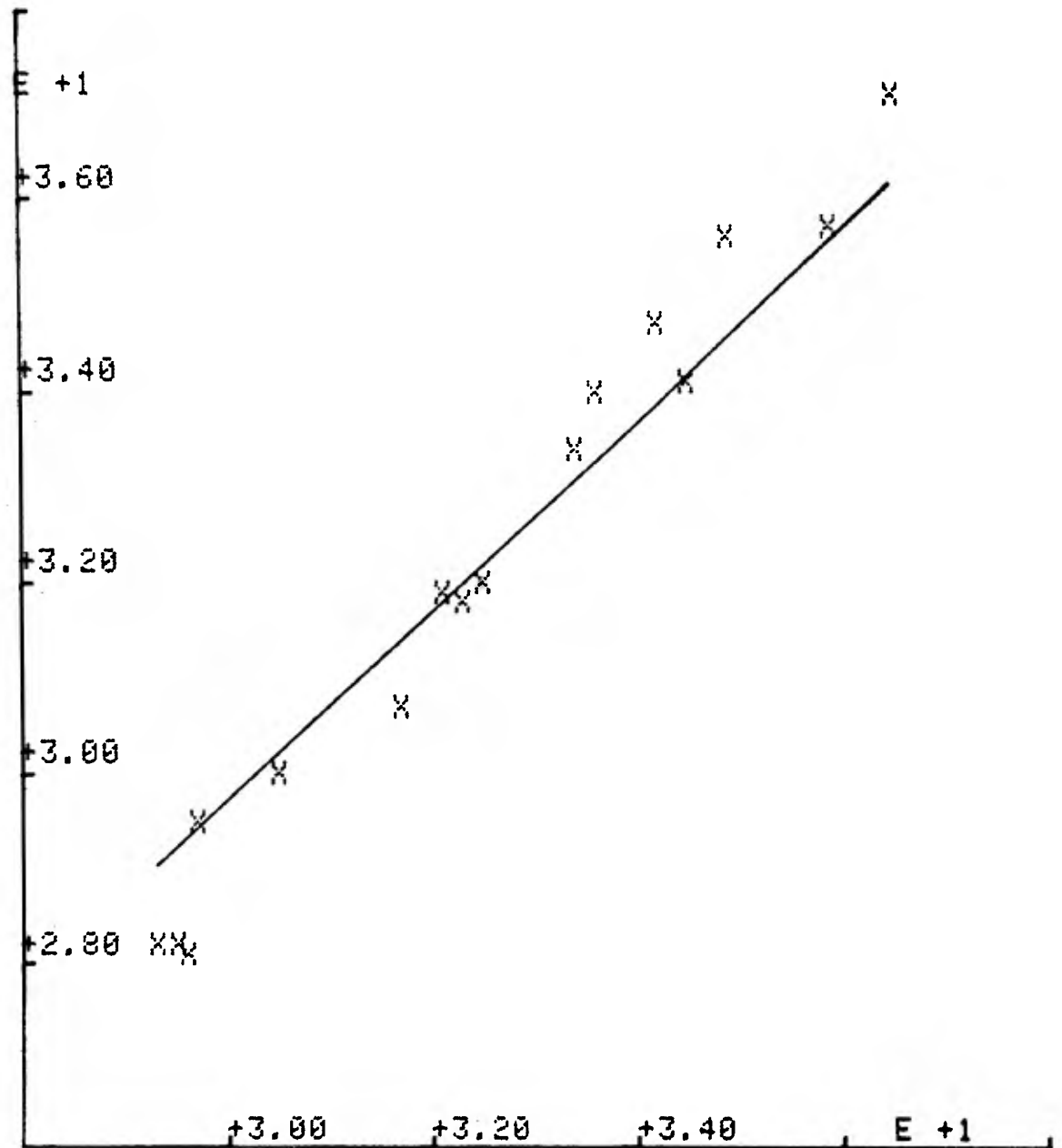
$$Y = A * X$$

$$A = 0.991127094371$$

$$R\text{-SQUARE} = 0.943562405237$$

$$\text{RES ERROR} = 0.507293273648$$

$$\text{MAX}(\text{ABS}(\text{RESIDUAL})) = 1.23736199337$$



RESIDUALS FOR EQUATION : Y = A*X

Y	ESTIMATE	RESIDUAL
29.3	30.0400	-0.8400
30.5	22.9376	0.2293
33.4	013405	0.2134
34.2	103649	0.2963
35.7	096546	0.3034
39.2	239249	-1.0392
39.7	141328	-0.7187
41.9	015179	0.0949
45.6	301970	0.6991
55.6	590335	1.0096
59.1	327361	-1.2373
67.5	436474	0.0655
75.5	211630	-0.2116
84.1	193947	-0.0939
97.7	521462	0.1185
113.7	176139	0.9233

$$Y = A + B * X$$

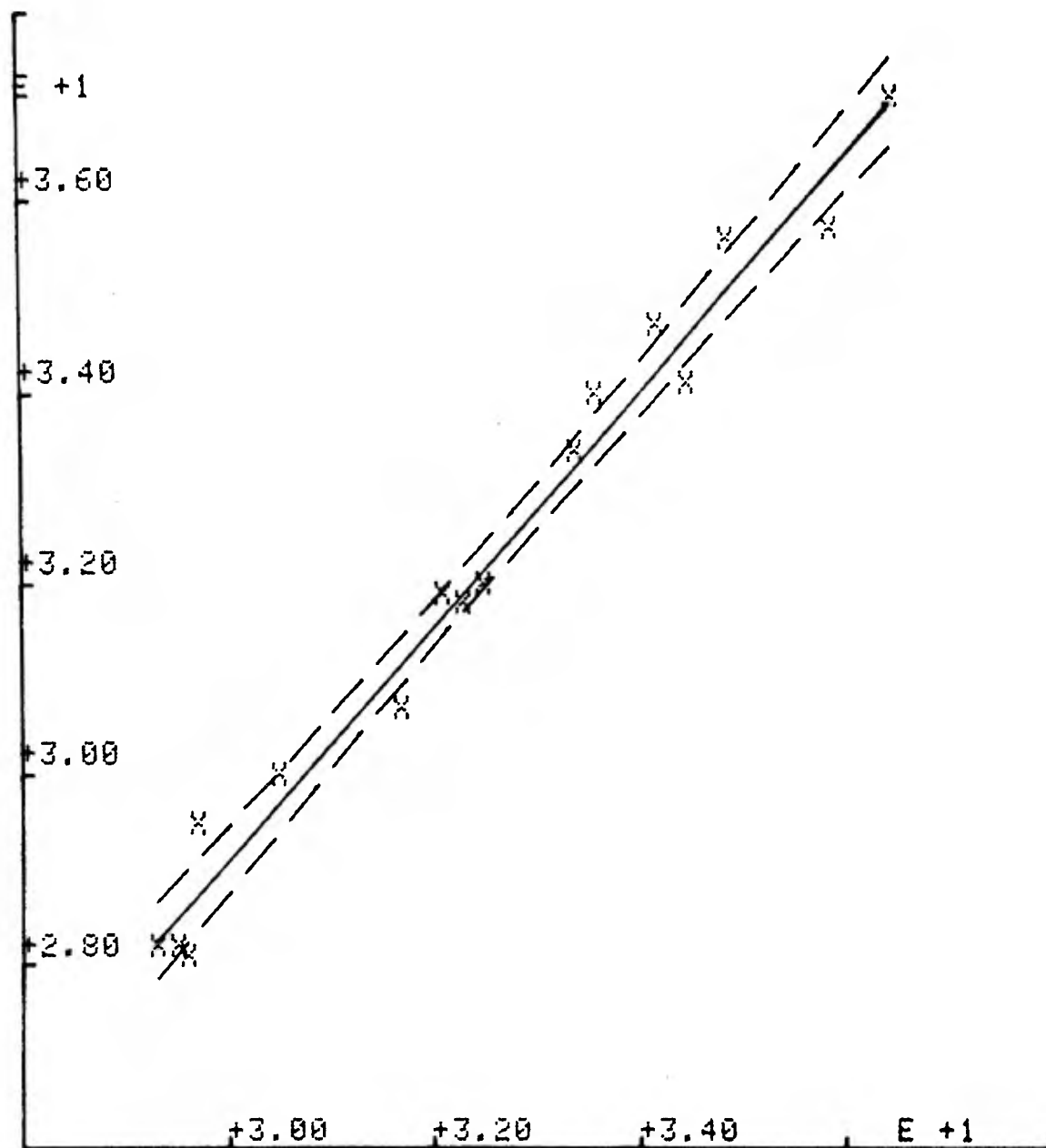
A =
-7.51805711175

B =
1.221239742

R-SQUARE =
0.978471798107

RES ERROR
0.193504008029

MAX(ABS(RESIDUAL))
0.747236774373



RESIDUALS FOR EQUATION : $Y = A + B * X$

X	Y	ESTIMATE	RESIDUAL
29.3	29.2	26426732289	0.0642673288273
30.3	30	272975501920	0.270244980774
32.3	31.4	279865540	0.127996554925
33.4	33.4	271350271	0.128649728976
34.2	34.7	2483430646	0.451657935377
29.5	29.2	5035152772	0.308515277227
30.7	30.7	1952427096	0.495242709625
31.9	31.9	6937396064	0.216261393575
32.1	34	5155982194	0.494401790576
33.6	35	1032099994	0.496790115977
34.9	35.1	6306392514	0.530639251427
29.5	29.5	7527632256	0.747236774373
29.7	29.2	17223450322	0.172234503225
34.1	34.1	6147139972	0.514713997224
35.7	35.7	324449626	0.624449626022
35.5	37.1	0571934712	0.0420055207791

11C/TEFO
Scm² WDZ

SELECT BEST FIT

EQUATION	A	B	RES ERROR	R-SQUARE	MAX DEVIATION
Y = A*X	0.99384		26.82449	0.98442	10.77353
Y = A + B*X	-21.91521	1.11115	6.99883	0.99593	4.90916
Y = A*EXP(B*X)	57.06126	0.00619	41.34827	0.97598	18.25399
Y = 1/(A + B*X)	0.01228	-0.00004	210.56031	0.87767	48.48832
Y = A + B/X	381.56449	-35309.17474	42.42931	0.97535	13.12625
Y = A + B*LOG(X)	-866.14686	201.80484	12.11945	0.99296	5.44267
Y = A*X^B	0.49194	1.13402	8.64528	0.99498	6.19321
Y = X/(A + B*X)	1.16518	-0.00083	12.86376	0.99253	9.63262

EQUATION Y = A + B*X HAS MAXIMUM R-SQUARE

EQUATION Y = A + B*X HAS MINIMUM MAXIMUM ABSOLUTE RESIDUAL

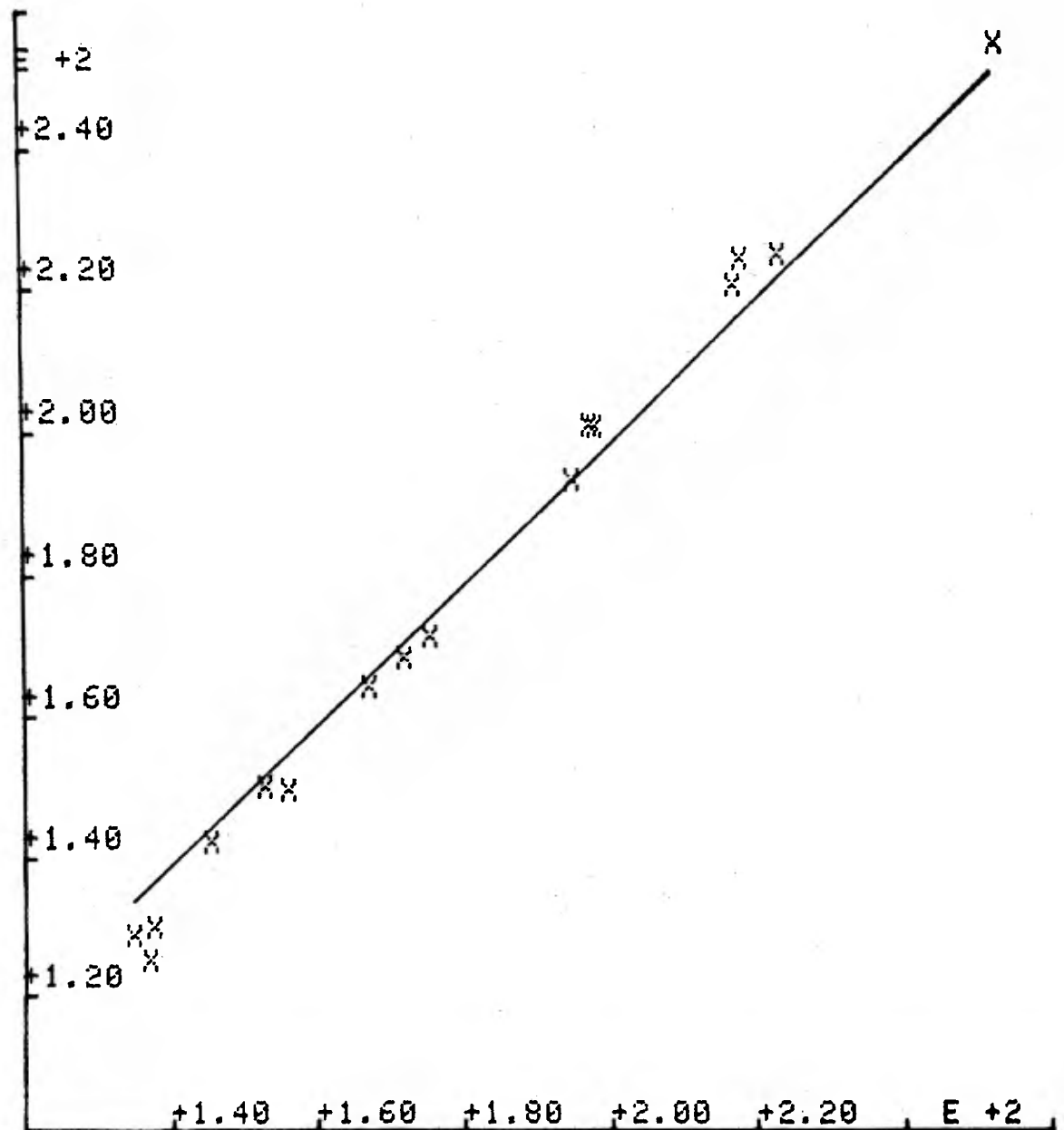
$$Y = A * X$$

$$A = 0.993837502895$$

$$R\text{-SQUARE} = 0.984416166911$$

$$\text{RES ERROR} = 26.824486002$$

$$\text{MAX}(\text{ABS}(\text{RESIDUAL})) = 10.7735275072$$



RESIDUALS FOR EQUATION : Y = A*X

X	Y	RESIDUAL
137.39444444	130.03333333	-6.50447986999
152.83888889	150	-1.89701967862
175.49666667	171.36666667	-3.04959229978
197.43111111	201.14222222	4.92777976172
223.44	224.77999999	2.71593724197
134.71666667	128.78	-5.10647559838
156.03444444	149.74777778	-5.32510495454
171.91333333	168.36111111	-2.49290690329
198.24	200.97777778	3.95943120392
219.31999999	224.29	7.306500063179
136.81777778	125.20111111	-10.7735275072
145.53	142.25555556	-2.37761624079
167.19444444	164.26666667	-1.99744249796
195.11666667	193.61222222	-0.30203855103
217.39444444	220.54666667	4.49191485669
253.06666667	255.16555556	3.65841148952

ESTIMATE

136.537813203
151.897019679
174.415169966
196.21442461
222.063051647
133.886475598
155.072892632
170.853917914
197.019346574
216.973499369
135.974639618
144.633171796
166.164109165
193.914260773
216.05475181
251.507144066

RESIDUAL

-6.50447986999
-1.89701967862
-3.04959229978
4.92777976172
2.71593724197
-5.10647559838
-5.32510495454
-2.49290690329
3.95943120392
7.306500063179
-10.7735275072
-2.37761624079
-1.99744249796
-0.30203855103
4.49191485669
3.65841148952

$$Y = A + B * X$$

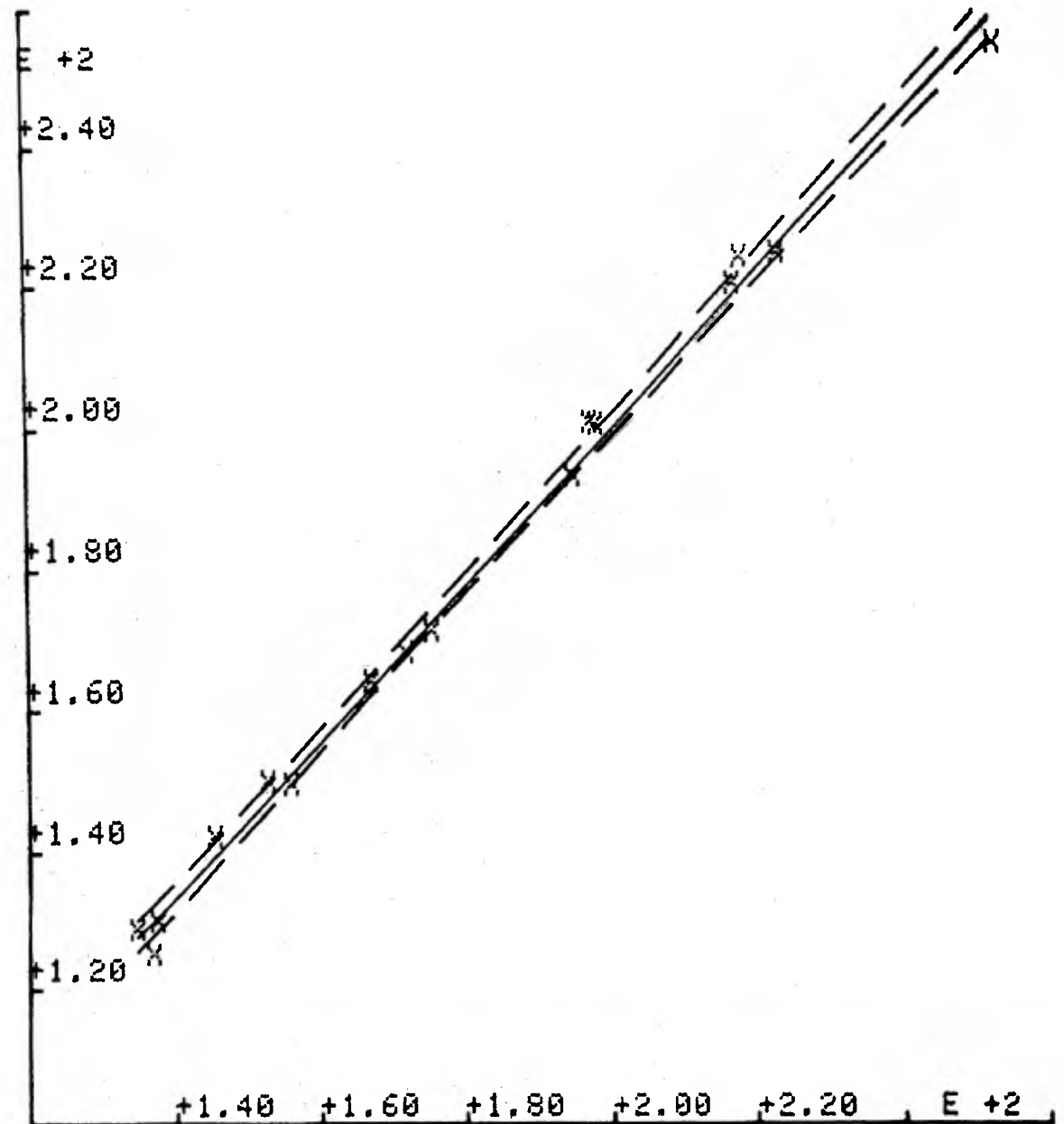
$$A = -21.9152105765$$

$$B = 1.11115299099$$

$$R\text{-SQUARE} = 0.995933991024$$

$$\text{RES ERROR} = 6.99893014876$$

$$\text{MAX}(\text{ABS}(\text{RESIDUAL})) = 4.90916131024$$



RESIDUALS FOR EQUATION : $Y = A + B \cdot X$

\hat{Y}	Y	RESIDUAL	ESTIMATE
137.38444444	130.03333333	-0.709925783	130.739925783
152.83888889	150	-1.09782204861	147.912177951
175.49666667	171.36666667	-1.72176883161	173.088435498
197.43111111	201.14222222	-3.68126317388	197.460959048
223.44	224.77999999	-1.58192494057	226.360813729
134.71666667	128.78	1.00439347415	127.775616526
156.03444444	149.74777778	-1.71515129793	151.462929065
171.91333333	168.36111111	-0.7455692936125	169.106893947
198.24	200.97777778	-0.61801942117	198.359758357
218.31999999	224.28	3.60952419992	220.670475801
136.81777778	125.20111111	-4.90916131024	130.110272421
145.53	142.25555556	-2.46467135394	139.790994202
167.19444444	164.26666667	-0.448327022245	163.963396444
195.11666667	193.61222222	-1.27703495922	194.889257181
217.39444444	220.54666667	0.903390074935	219.643276592
253.06666667	255.16555556	-4.11501745353	259.280573009

RESIDUALS FOR EQUATION : $Y = A + B \cdot X$

Y	X	RESIDUAL	ESTIMATE	RESIDUAL
137.38444444	130.03333333	-0.70659244958	130.739925783	-0.70659244958
152.83888889	150	-2.09782204861	147.912177951	-2.09782204861
175.49666667	171.36666667	-1.72176883161	173.088435498	-1.72176883161
197.43111111	201.14222222	3.68126317388	197.460959048	3.68126317388
223.44	224.77888889	-1.58132484057	226.360813729	-1.58132484057
134.71666667	128.78	1.00439347415	127.775616526	1.00439347415
156.03444444	149.74777778	-1.71515129703	151.462929065	-1.71515129703
171.91333333	168.36111111	-0.745592836125	169.106893947	-0.745592836125
198.24	200.97777778	2.61801942117	198.359758357	2.61801942117
219.31999999	224.28	3.60952419992	220.670475801	3.60952419992
136.81777778	125.20111111	-4.90916131024	130.110272421	-4.90916131024
145.53	142.25555556	2.46467135394	139.790994202	2.46467135394
167.19444444	164.26666667	0.40327022245	163.963396444	0.40327022245
195.11666667	193.61222222	-1.27703495922	194.889257181	-1.27703495922
217.39444444	220.54666667	0.903390074935	219.643276592	0.903390074935
253.06666667	255.16555556	-4.11501745353	259.200573009	-4.11501745353

SELECT BEST FIT

EQUATION	A	B	RES ERROR	R-SQUARE	MAX DEVIATION
Y = A*X	1.00012		0.57107	0.98649	1.59291
Y = A + B*X	-5.26552	1.10597	0.18110	0.99571	0.76148
Y = A*EXP(B*X)	15.95241	0.02272	0.13243	0.99687	0.63884
Y = 1/(A + B*X)	0.04382	-0.00047	0.33362	0.99211	0.83896
Y = A + B/X	101.94037	-2566.66262	0.83255	0.98030	1.81975
Y = A + B*LOG(X)	-159.31340	53.58927	0.41550	0.99017	1.28807
Y = A*X^B	0.66562	1.10403	0.16817	0.99602	0.75132
Y = X/(A + B*X)	1.10514	-0.00209	0.15703	0.99628	0.72161

EQUATION Y = A*EXP(B*X) HAS MAXIMUM R-SQUARE

EQUATION Y = A*EXP(B*X) HAS MINIMUM MAXIMUM ABSOLUTE RESIDUAL

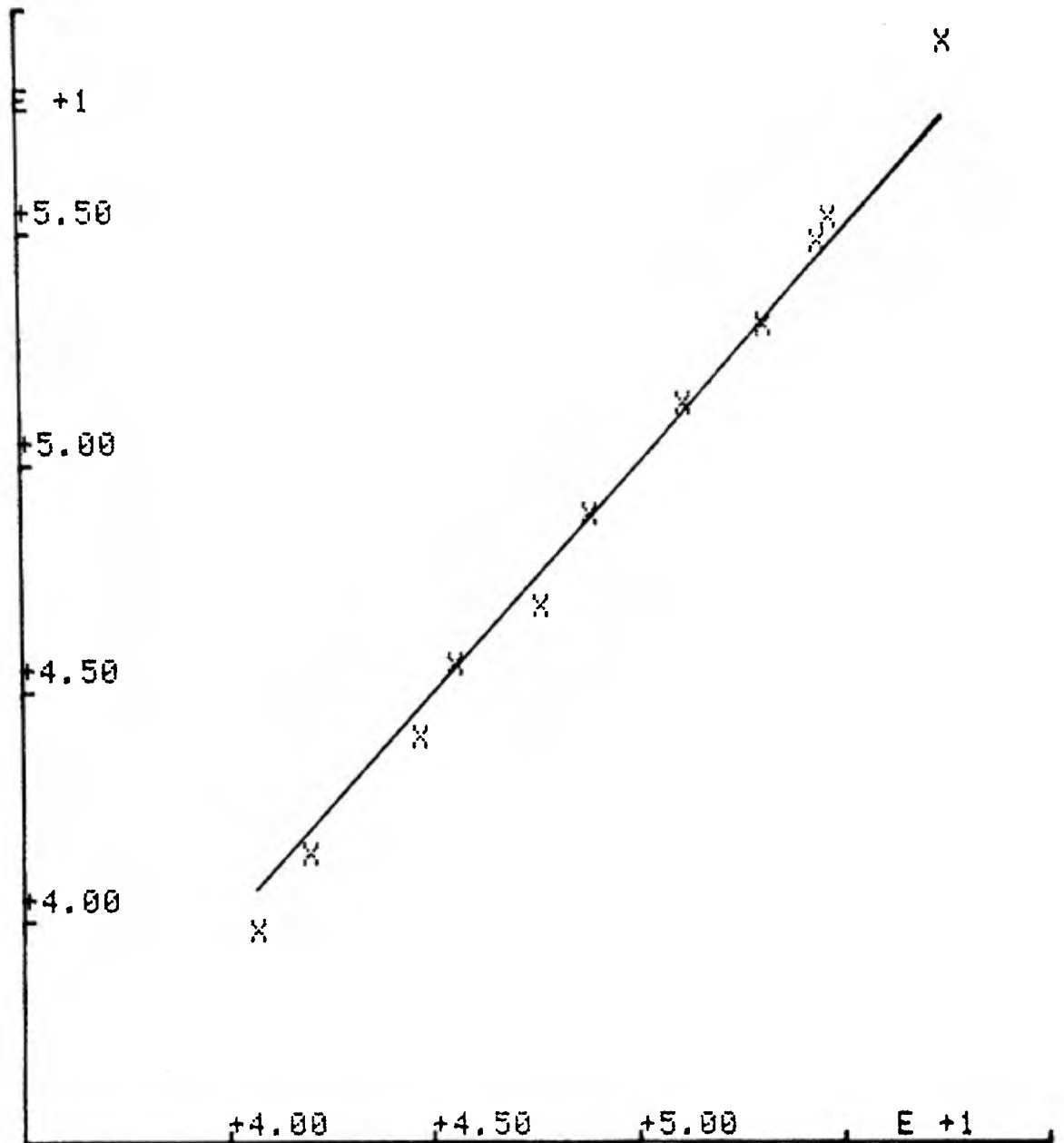
$$Y = A * X$$

$$A = 1.00012301554$$

$$R\text{-SQUARE} = 0.986488138302$$

$$\text{RES ERROR} = 0.57106586873$$

$$\text{MAX}(\text{ABS}(\text{RESIDUAL})) = 1.592914305$$



RESIDUALS FOR EQUATION : Y = A**X

X	Y	ESTIMATE	RESIDUAL
42.6	41.5	42.00516665526	-0.5051666552606
45.9	45.5	45.6056095095	-0.00560950954379
48.5	48.9	48.9060154599	-0.00601545991976
54.5	54.0	54.5067043469	0.2932956553166
57.6	55.2	57.607085695	1.592914305
44.7	44	44.7054997946	-0.705499794559
53.2	53	53.2065444266	-0.206544426634
49.7	39.0	49.7050067324	-0.905006732406
47.7	46.9	47.7059679412	-0.905967941174
51.2	51.5	51.2062993956	0.0937016044422
54.2	55.5	54.9067412515	0.493258749505

SELECT BEST FIT

EQUATION	A	B	RES ERROR	R-SQUARE	MAX DEVIATION
Y = A*X	1.01538		0.25400	0.96019	1.05703
Y = A + B*X	1.41894	0.96958	0.24022	0.96235	0.95707
Y = A*EXP(B*X)	11.98012	0.03107	0.25661	0.95978	0.98179
Y = 1/(A + B*X)	0.06291	-0.00100	0.27985	0.95614	1.00716
Y = A + B/X	61.26646	-918.33877	0.22577	0.96462	0.92030
Y = A + B*LOG(X)	-71.11751	29.90031	0.22950	0.96403	0.94123
Y = A*X^B	1.16853	0.95910	0.23978	0.96242	0.96841
Y = X/(A + B*X)	0.94934	0.00114	0.23989	0.96241	0.98020

EQUATION Y = A + B/X HAS MAXIMUM R-SQUARE

EQUATION Y = A + B/X HAS MINIMUM MAXIMUM ABSOLUTE RESIDUAL

RESIDUALS FOR EQUATION : Y = A**X

X	Y	ESTIMATE	RESIDUAL
27.8	27.9	2275908834	0.42759088342
28.5	28.9	23393575603	-0.13935756034
30.4	30.9	309675913977	-0.267591397696
31.7	32.1	321975766549	-0.0875766548345
33.4	33.5	339137242989	-0.413724298784
33.9	33.3	3292429719505	1.05702914955
32.9	33.3	334060339153	-0.40603391527
27.9	29.2	2275908834	-0.0275908834196
30	31.2	304614290109	0.738570999115
33.7	33.5	337106481054	-0.0106481053796
34.2	34.9	349291052650	0.0708947341959

$$Y = A + B * X$$

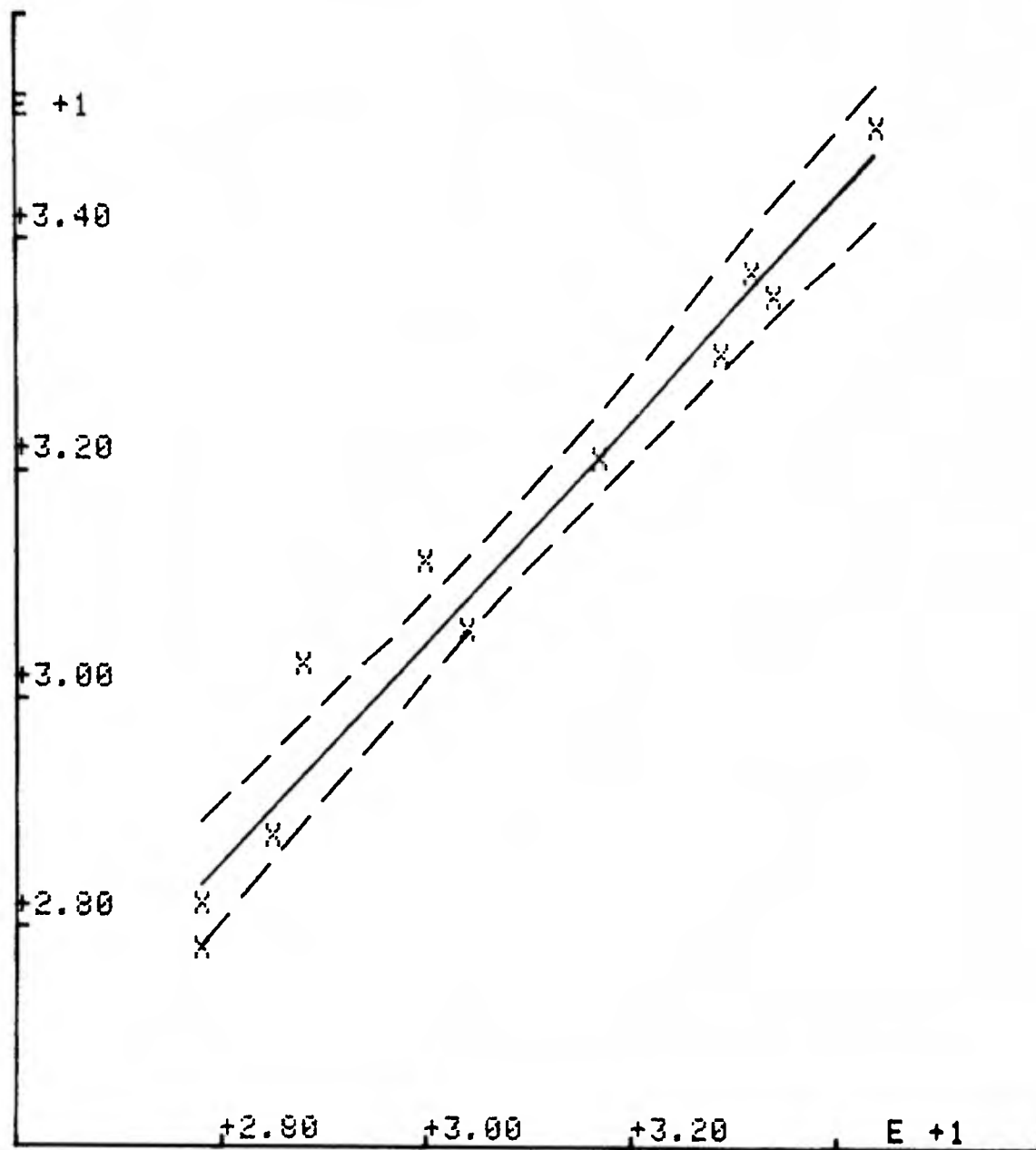
$$A = 1.41893517663$$

$$B = 0.969583101378$$

$$R\text{-SQUARE} = 0.962354049889$$

$$\text{RES ERROR} = 0.24021918792$$

$$\text{MAX}(\text{ABS}(\text{RESIDUAL})) = 0.957071503678$$



RESIDUALS FOR EQUATION : $Y = A + B * X$

X	Y	ESTIMATE	RESIDUAL
27.9	37.9	37.33453949	-0.573345394944
28.5	39.9	39.20535659	-0.252053565909
30.4	39.9	39.42614585	-0.294261458527
31.7	32.1	32.1547194903	-0.0547194903186
33.4	33.5	33.9030107627	-0.303010762661
33.9	33.7	34.29294963	0.2957071503678
33.9	33.7	33.318219212	-0.318219211972
33.9	31.2	33.3733453949	-0.173345394944
33.9	31.2	30.506420210	0.693571782024
33.5	33.5	33.6090941424	0.0909059576142
34.4	34.7	34.772593964	0.2274061359661

SELECT BEST FIT

EQUATION	A	B	RES ERROR	R-SQUARE	MAX DEVIATION
Y = A*X	1.01594		6.68592	0.99461	3.61249
Y = A + B*X	-6.65268	1.05396	5.02603	0.99595	4.02715
Y = A*EXP(B*X)	58.62589	0.00625	10.91261	0.99121	4.89260
Y = 1/(A + B*X)	0.01243	-0.00004	34.28950	0.97238	9.26648
Y = A + B/X	344.40220	-28279.94485	26.06160	0.97900	8.25100
Y = A + B*LOG(X)	-723.12111	174.94334	10.13596	0.99183	4.93123
Y = A*X^B	0.81647	1.04221	5.05265	0.99593	4.13172
Y = X/(A + B*X)	1.03508	-0.00028	5.15168	0.99585	4.29060

EQUATION Y = A + B*X HAS MAXIMUM R-SQUARE

EQUATION Y = A*X HAS MINIMUM MAXIMUM ABSOLUTE RESIDUAL

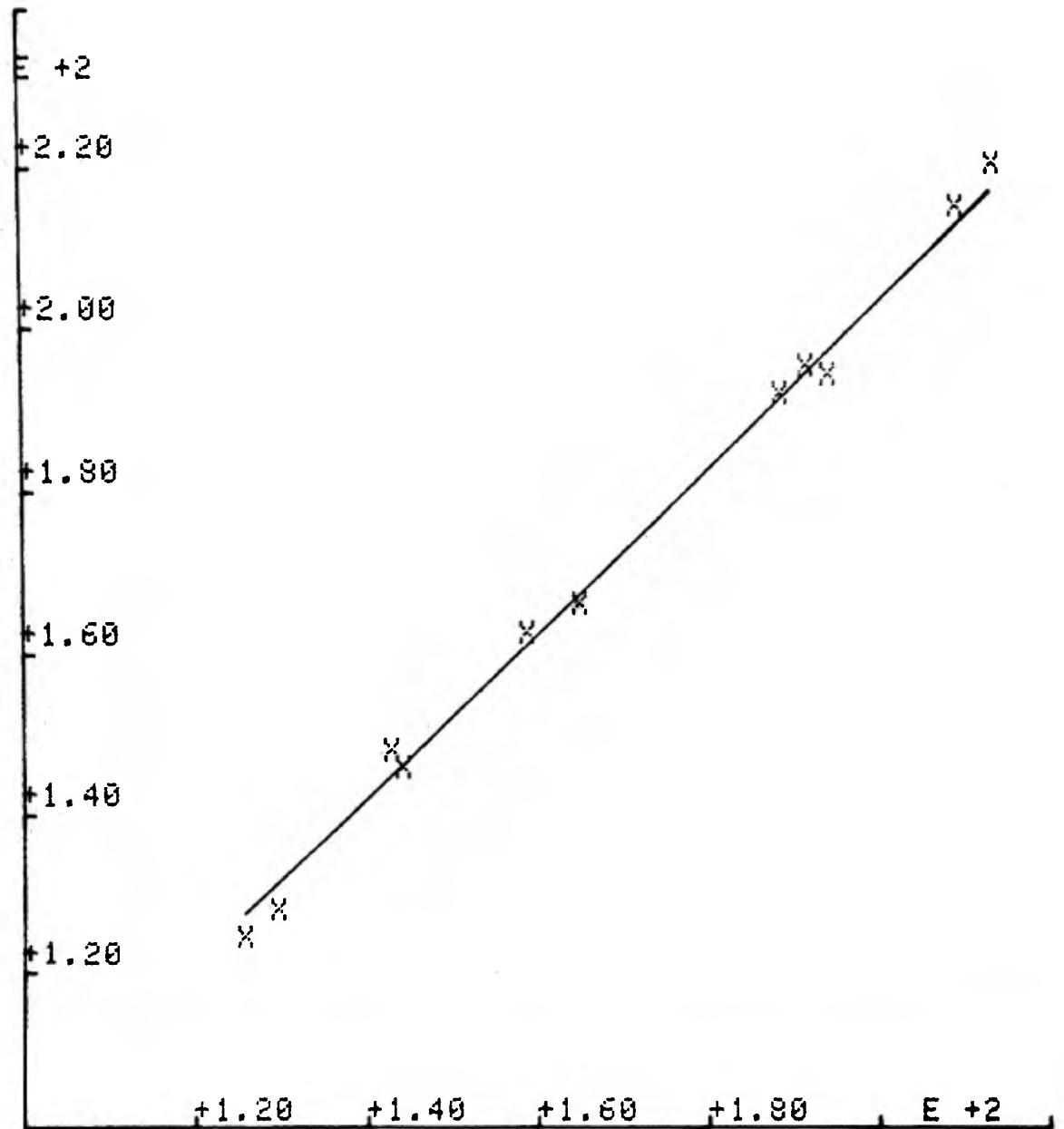
$$Y = A * X$$

$$A = 1.01594074399$$

$$R\text{-SQUARE} = 0.994613820384$$

$$\text{RES ERROR} = 6.6859210754$$

$$\text{MAX(ABS(RESIDUAL))} = 3.61249029833$$



RESIDUALS FOR EQUATION : $Y = A * X$

X	Y
129.73333333	128.18888889
144.4	145.92
165.17333333	166.26
191.96111111	195.45333333
213.76	220.55555556
143.04	148.13333333
194.47555556	194.33333333
125.71777778	124.70666667
159.	162.58666667
188.87111111	192.09
209.45777778	215.05555556

ESTIMATE

131.801379197
146.701843432
167.806319154
195.02111404
217.167493436
145.320164021
197.575640599
127.721812599
161.534578295
191.881857141
212.79669059

RESIDUAL

-3.61249029833
-0.781843432
-1.546319154
0.432219293592
3.18806211984
2.81316931273
-3.24230726602
-3.0151460219
1.05208837195
0.208142359194
2.2593649651

$$Y = A + B * X$$

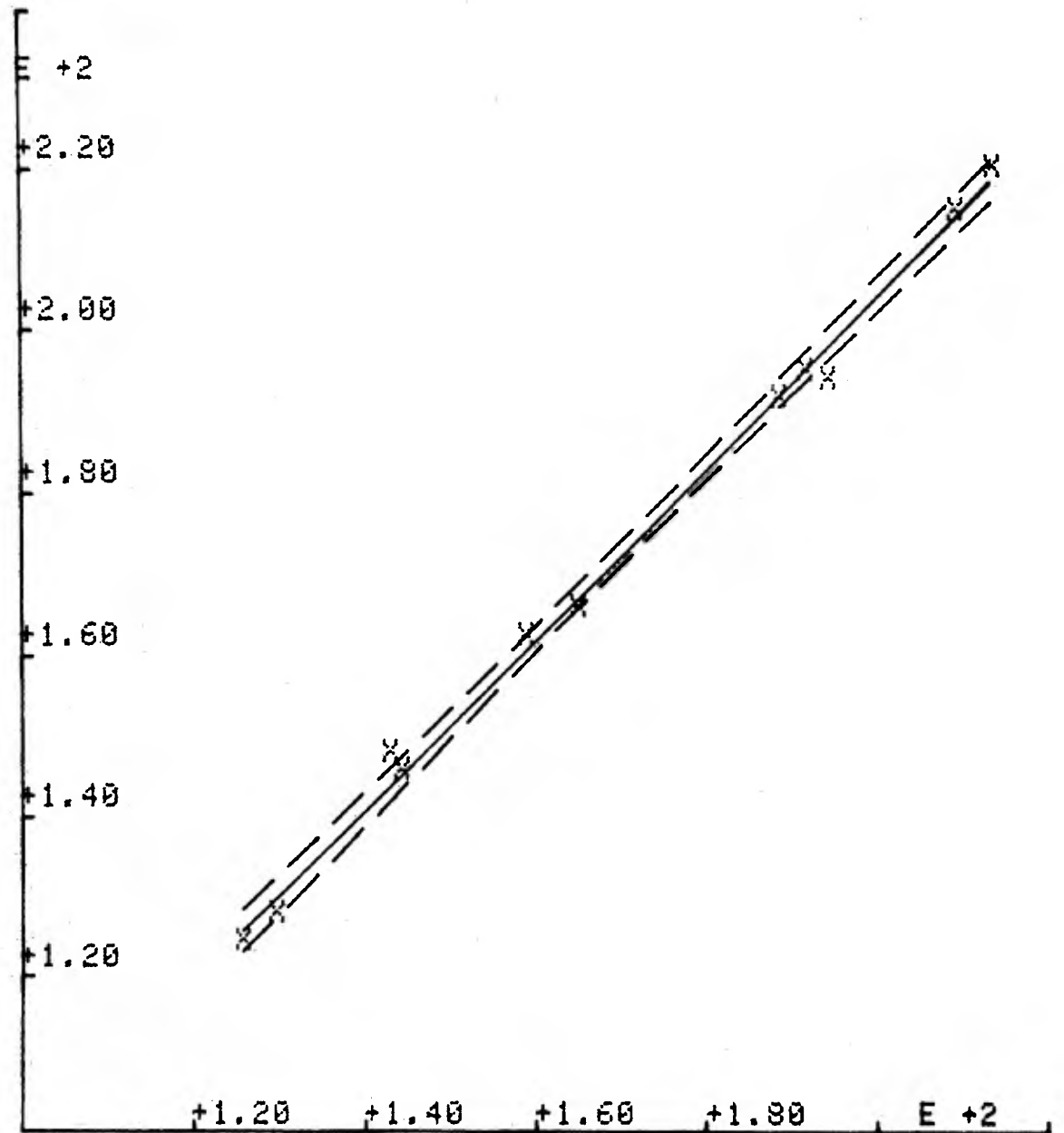
$$A = -6.65268148953$$

$$B = 1.05396299815$$

$$R\text{-SQUARE} = 0.995951026416$$

$$\text{RES ERROR} = 5.02603324648$$

$$\text{MAX}(\text{ABS}(\text{RESIDUAL})) = 4.02714756753$$



RESIDUALS FOR EQUATION : $Y = A + B * X$

\hat{Y}	Y	ESTIMATE	RESIDUAL
129.733333333	128.188888889	130.08145147	-1.89256258154
144.4	145.92	145.539575443	0.390424556707
165.173333333	166.26	167.433900125	-1.17390012486
191.961111111	195.453333333	195.667226705	-0.21389337196
213.76	220.355555556	218.642488995	1.7131065606
143.04	148.133333333	144.106195766	4.02714756753
194.475555556	194.333333333	199.317359111	-3.9840247773
125.717777778	124.706666667	125.849204498	-1.14253783119
159.	162.586666667	160.927435216	1.65923145039
199.871111111	192.09	192.410481041	-0.320491041011
209.457777778	215.055555556	214.108065963	0.94748959264

SELECT BEST FIT

EQUATION

	A	B	RES ERROR	R-SQUARE	MAX DEVIATION
Y = A*X	0.96752		1.09349	0.98299	2.15719
Y = A + B*X	-2.81874	1.02309	0.90284	0.98595	1.97805
Y = A*EXP(B*X)	16.60119	0.02115	0.93317	0.98548	1.54209
Y = 1/(A + B*X)	0.04327	-0.00044	1.64596	0.97439	2.55689
Y = A + B/X	98.82177	-2475.66551	2.20735	0.96566	2.90249
Y = A + B*LOG(X)	-149.76008	50.76416	1.34496	0.97908	2.42663
Y = A*X^B	0.78621	1.05263	0.89404	0.98609	1.95947
Y = X/(A + B*X)	1.08288	-0.00094	0.89844	0.98602	1.94076

EQUATION Y = A*X^B HAS MAXIMUM R-SQUARE

EQUATION Y = A*EXP(B*X) HAS MINIMUM MAXIMUM ABSOLUTE RESIDUAL

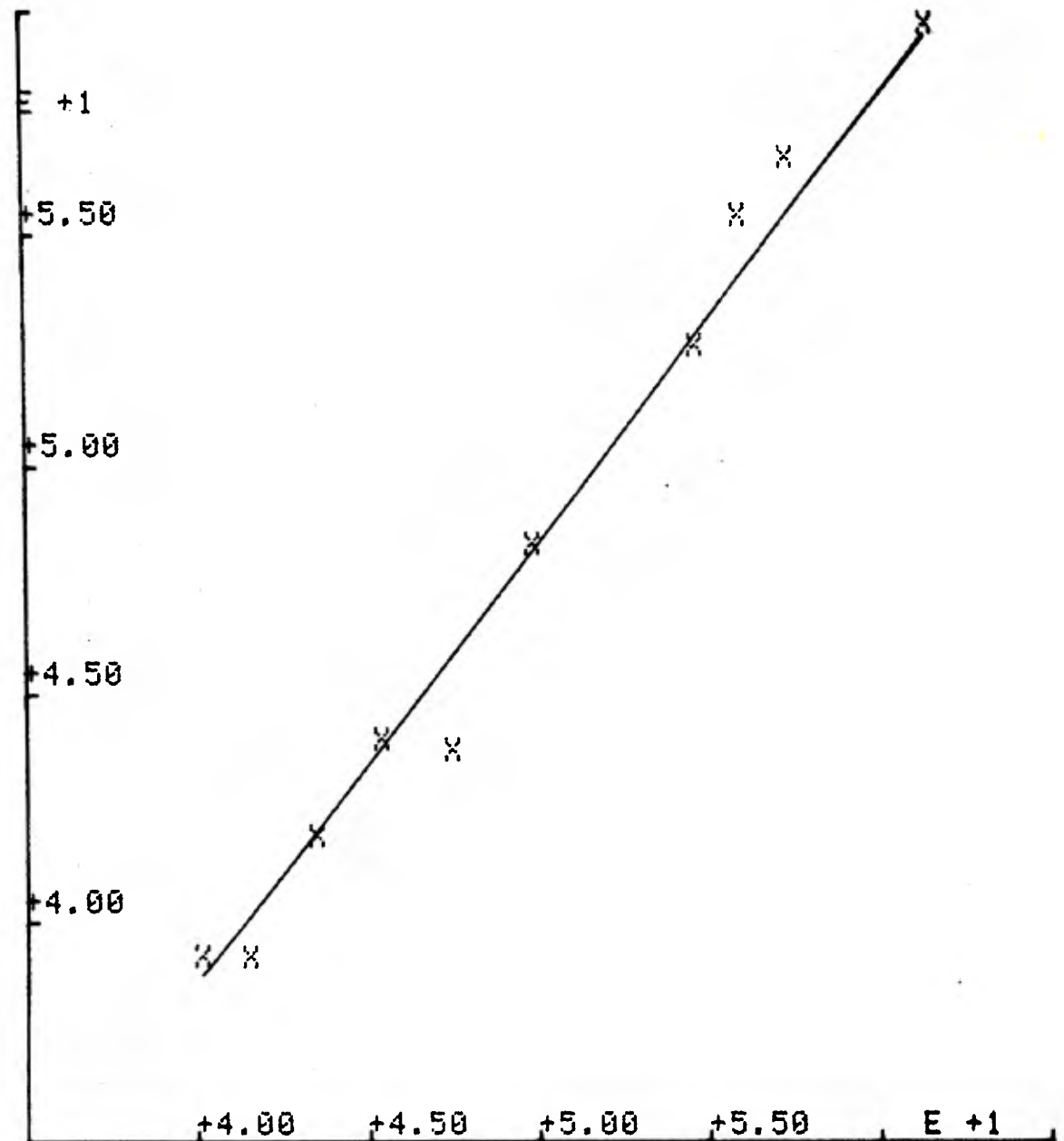
$$Y = A * X$$

$$A = 0.967519753295$$

$$R\text{-SQUARE} = 0.982989229895$$

$$\text{RES ERROR} = 1.09348632387$$

$$\text{MAX}(\text{ABS}(\text{RESIDUAL})) = 2.15718828153$$



RESIDUALS FOR EQUATION : $Y = a + bX$

X	Y	ESTIMATE	RESIDUAL
45.4	44	43.9253967996	0.0746032003931
54.7	52	52.9233305053	-0.323330505253
57.4	56	55.5356339392	1.16436616085
40.1	39	38.7975421071	0.402457892958
47.5	43	45.9571092915	-2.15719928153
56	55	54.1911061945	1.21993381546
41.5	39	40.1520697619	-0.952069761756
43.5	41	42.0871092693	-0.187109269346
49.9	48	48.2792356994	0.0207643105641
61.5	59	59.5024640277	0.197535172339

11C / T40

WJ3cm RJDH

SELECT BEST FIT

EQUATION

	A	B	RES ERROR	R-SQUARE	MAX DEVIATION
Y = A*X	1.00219		0.18026	0.98612	0.52802
Y = A + B*X	1.03815	0.97474	0.17001	0.98691	0.57918
Y = A*EXP(B*X)	14.25544	0.02576	0.23619	0.98182	0.65293
Y = 1/(A + B*X)	0.05244	-0.00068	0.37308	0.97128	1.06659
Y = A + B/X	74.78082	-1384.17197	0.19286	0.98515	0.79127
Y = A + B*LOG(X)	-95.97942	36.89215	0.15669	0.98794	0.59769
Y = A*X^B	1.09152	0.97652	0.16932	0.98696	0.56228
Y = X/(A + B*X)	0.97712	0.00054	0.16899	0.98699	0.55046

EQUATION Y = A + B*LOG(X) HAS MAXIMUM R-SQUARE

EQUATION Y = A*X HAS MINIMUM MAXIMUM ABSOLUTE RESIDUAL

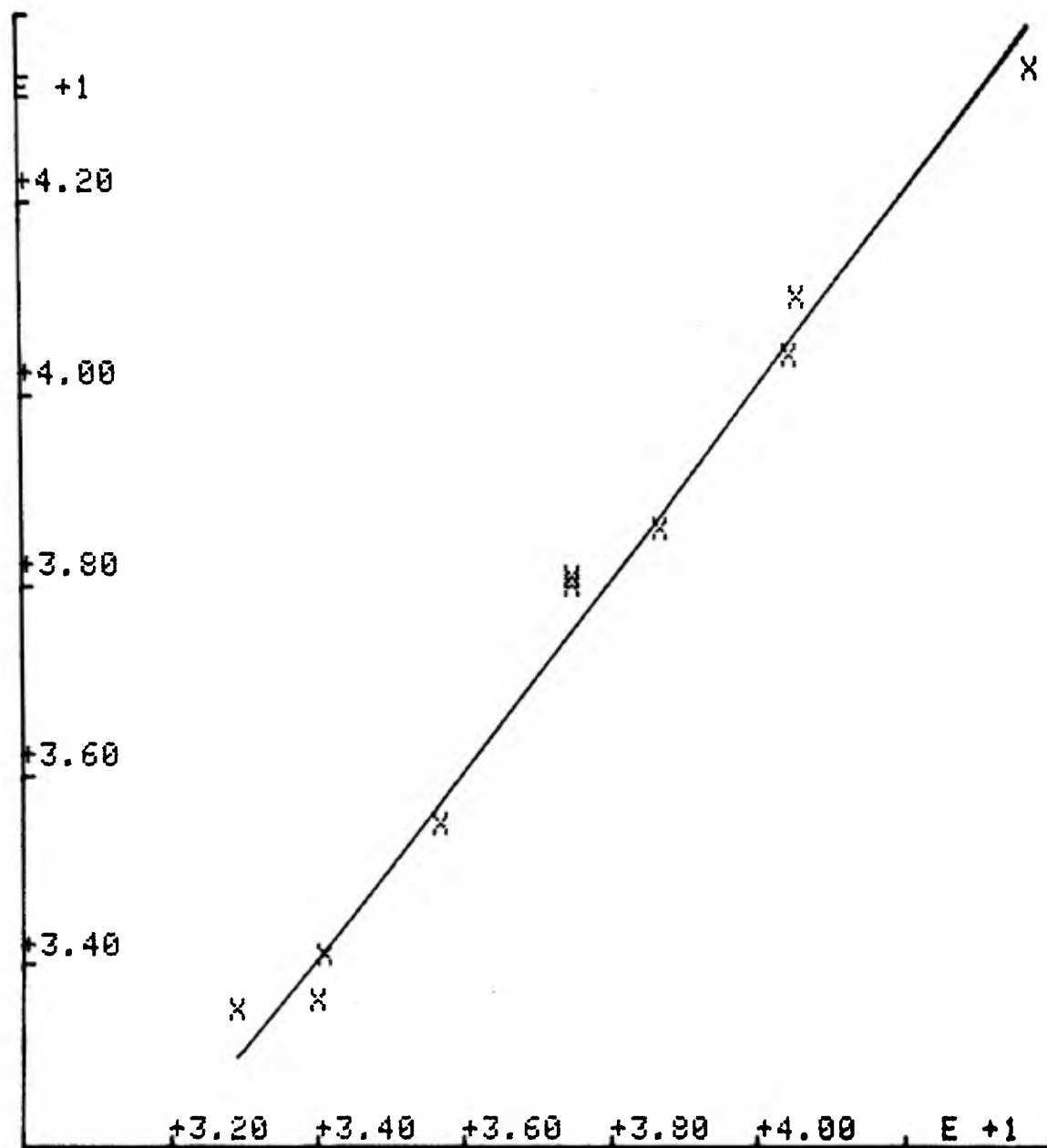
$$Y = A * X$$

$$A = 1.00218770587$$

$$R\text{-SQUARE} = 0.986122717072$$

$$\text{RES ERROR} = 0.1802589666$$

$$\text{MAX}(\text{ABS}(\text{RESIDUAL})) = 0.528024476941$$



RESIDUALS FOR EQUATION : $y = a*x^2$

x	y	ESTIMATE	RESIDUAL
34.1	34.1	34.1746007701005	-0.0746007701005
37.5	38.6	37.5820389701	0.417961029948
38.7	38.6	38.77846642171	-0.184664217094
34.5	38.1	34.074381999514	-0.474381999514
37.5	40.4	37.5820389701	0.517961029948
40.5	35.5	40.5886020877	-0.188602087656
35.7	35.5	32.9719755231	0.528024476941
40.6	43.4	35.77810109995	-0.2781010999489
43.0	43.4	40.895821517	0.31179141757
43.0	43.4	43.095821517	-0.495821517021

SELECT BEST FIT

EQUATION	A	B	RES ERROR	R-SQUARE	MAX DEVIATION
Y = A*X	0.96981		11.41349	0.99567	6.52238
Y = A + B*X	-4.27497	0.98925	10.35056	0.99607	6.09477
Y = A*EXP(B*X)	71.81801	0.00484	60.92282	0.97688	17.63524
Y = 1/(A + B*X)	0.01029	-0.00002	323.56101	0.87720	45.97776
Y = A + B/X	410.73515	-41478.83505	98.06103	0.96278	15.73788
Y = A + B*LOG(X)	-900.95661	207.48624	29.87307	0.98866	10.77870
Y = A*X^B	0.85029	1.02430	10.60507	0.99598	5.93936
Y = X/(A + B*X)	1.05867	-0.00012	10.99090	0.99583	5.81204

EQUATION Y = A + B*X HAS MAXIMUM R-SQUARE

EQUATION Y = X/(A + B*X) HAS MINIMUM MAXIMUM ABSOLUTE RESIDUAL

$$Y = A * X$$

X

A =

0.969814148858

R-SQUARE =

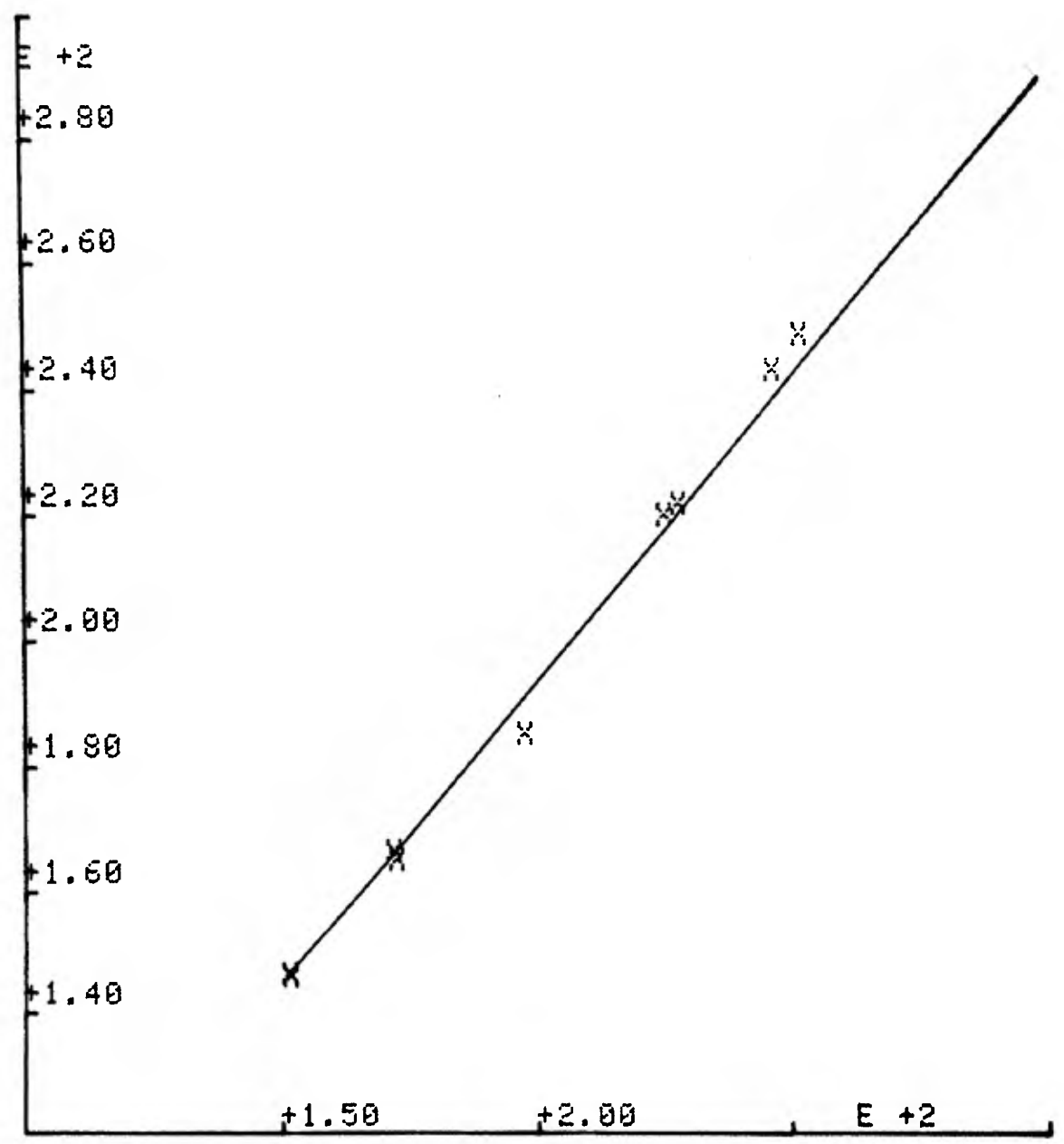
0.995668423677

RES ERROR

11.4134868571

MAX(ABS(RESIDUAL))

6.52238362811



RESIDUALS FOR EQUATION : Y = A*X

X	Y	RESIDUAL
172.015555556	166.711111111	-0.1120084903
227.916666667	222.088888889	1.05209079505
246.82	243.18	3.81047177892
151.488888889	146.346666667	-0.569401172526
197.916666667	195.42	-6.52238362811
252	249.684444444	4.29127893229
151.705555556	145.911111111	-1.215093127
172.55	165.272222222	-2.06920916319
225.104444444	220.033333333	1.72385814034
299.3	297.936666667	-2.37870808648

Y ESTIMATE

166.823119601
221.036908094
239.369528221
146.916067839
191.942383628
244.393165512
147.126194239
167.341431385
218.309475193
290.265374753

RESIDUAL

-0.1120084903
1.05209079505
3.81047177892
-0.569401172526
-6.52238362811
4.29127893229
-1.215093127
-2.06920916319
1.72385814034
-2.37870808648

$$Y = A + B * X$$

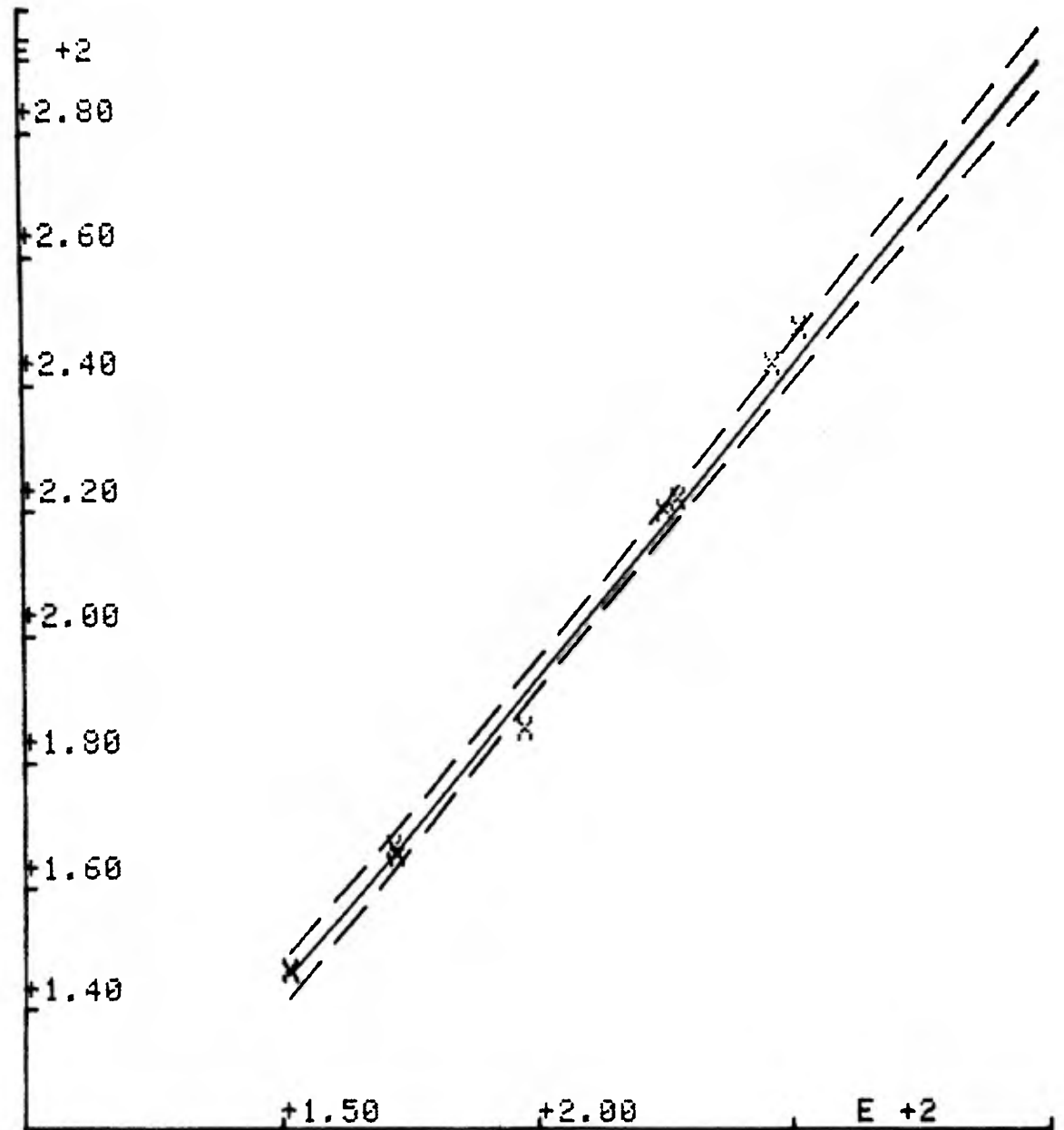
X
A =
-4.27497473349

B =
0.989253436213

R-SQUARE =
0.996071817013

RES ERROR
10.350564878

MAX(ABS(RESIDUAL))
6.09476785035



RESIDUALS FOR EQUATION : $Y = A + B \cdot X$

\bar{X}
 172.015555556
 227.916666667
 246.82
 151.488888889
 197.916666667
 252
 151.705555556
 172.55
 225.10444444
 299.3

\bar{Y}
 166.711111111
 222.088888889
 243.18
 146.346666667
 185.42
 248.68444444
 145.911111111
 165.272222222
 220.033333333
 297.896666667

ESTIMATE
 165.892004692
 221.192370937
 239.892558393
 145.595929148
 191.51476785
 245.016891192
 145.800267393
 166.420705695
 218.41037044
 291.808578725

RESIDUAL
 9.819106429165
 9.996517952149
 3.28744160738
 0.760737518719
 -6.09476785035
 3.66755325224
 0.110943718651
 -1.14948346286
 1.62296239332
 -3.92191205942