

Appendix I
Calibration and Equating Summary

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MSA 2006 Calibration and Equating Summary

Overview

This document provides a brief summary of the operational calibration and equating of the 2006 MSA mathematics tests. These tests were calibrated and equated using the same statistical methods and procedures that were employed in 2005. The calibration and equating sample was built around the stratified quasi-random sample of schools that was used last year. Schools were added to or deleted from last year's sample in order to obtain a closer match between the 2006 calibration sample and the 2006 census data.

Two items were suppressed in the final calibrations: Item #57 in Grade 4, Form 1 (suppressed at the request of MSDE prior to any analyses), and Item #33 in Grade 3 Forms 1 and 2 (suppressed with the approval of MSDE after the initial calibrations because of poor item statistics).

The 2006 tests performed as expected and the equated forms at each grade level produced very similar scale score distributions. The 2006 calibration results were compared with the 2005 calibration and census results, and were found to be consistent in terms of item parameters, scale score distributions, and score trends.

Verifying the Representativeness of the Calibration Sample.

To verify that the sample was representative of the statewide examinee population in terms of gender and ethnicity, the distributions of gender and ethnicity in the 2006 sample were compared with the total 2005 MSA population distributions. The results are shown in Tables 2 and 3.

Overall, these comparisons indicate that the calibration sample was representative of the statewide examinee population in terms of gender and ethnicity. The percentages of male and female students were within 1 percentage point of the target values¹ in grades 3, 4, 5, 6, and 8 and within 2 percentage points of the target values in grade 7. The percentages of students from the five major ethnic groups were all within 1 percentage point of the target values in grades 3, 6, 7, and 8, within 2 percentage points in grade 4, and within 3.1 percentage points in grade 5.

Verifying the Accuracy of Items and Scoring Keys.

Item-level frequency distributions were examined to verify that items were producing the expected score distributions. Classical item analysis results also were examined and any marginal item statistics were compared with previous years' statistics for the same items.

The frequency distributions indicated that the constructed response items were yielding the full range of possible scores. Answer keys were examined and verified for items with any of the following statistics:

- point biserial less than .15 for the answer key
- point biserial greater than zero for any of the incorrect answer options
- p-value less than .30

¹ The target value for each group was the exact proportional representation of that group in the total MSA population in 2005.

- omit rate greater than 5 percent.

As noted above, Item #33 was subsequently removed from the Grade 3 analysis, so these statistics were rerun with that item omitted. The statistics for Item #33 were as follows:

Test Form	P Value	Point Biserial Item-Total Correlations			Omit Rate	
		Correct Response	Distractor 1	Distractor 2		Distractor 3
Form 1	0.6445	0.0265	0.0106	0.1682	-0.203	0.51%
Form 2	0.6599	-0.0257	-0.0005	0.2031	-0.164	0.36%

The final item analysis results for the calibration sample, after removing Item #33, are shown in Tables 4a to 9b. The item analysis results were consistent with previous years' statistics, and no items were identified as miskeyed. Raw score reliability coefficients for the test forms ranged from .92 to .96.

Checking the Stability of Common Items on Alternate Forms

The stability of common items of common items on Form 1 and Form 2 was verified at each grade level, using the method proposed by Kolen and Brennan (1995):

- (1) Calibrate the two operational test forms separately.
- (2) Compare the a parameters (using log of a) and the b parameters for Form 1 and Form 2, and compare the parameter plots for Form 1 vs. Form 2.

After examining the item parameters and plots from the two separate calibrations, it was determined that the common item parameters were consistent across the two operational forms for all items except Grade 3, Item #33, and could be included as across-form anchors in the concurrent calibration of the two forms. The plots and item parameters from the separate calibrations are provided in Figures 1 to 6 and Tables 10 to 15.

Calibrating and Equating the Two Operational Test Forms at Each Grade Level.

At each grade level the two operational forms were calibrated together, using CTB's Pardux software to implement the same mixed model that was used in previous years (3PL for selected response and SPR items, and 2PPC for constructed response items). All of the items converged within the specified number of iterations ($n < 100$).

Each test form contained a representative set of anchor items from previous years' administrations, and these items were used to equate the item parameters and place the 2006 tests on the previous years' scale using the Stocking and Lord test characteristic curve method. The stability of the equating anchor items was evaluated using plots of the anchor item parameters, correlations, and root mean square errors.

The equating results showed high correlations for the a and b parameters. As shown in Table 16, correlations of the estimated and anchor parameters ranged from .85 to .97 for the a parameters, and from .98 to .99 for the b parameters. The equating plots and test characteristic curves are shown in Figures 7 to 30.

Checking the Equating Results for Reasonableness.

The following checks were used for this to verify the reasonableness of the equating results:

- (1) The test characteristic curves for Form 1 and Form 2 were compared.
- (2) The scale score means and standard deviations of calibration sample students were compared for Form 1 vs. Form 2. If the spiraling of test forms was successful and the equating was accurate, then the scale score distributions should be very similar for the two test forms.
- (3) The 2006 scale score distributions for the calibration sample were compared with the 2005 scale score distributions for the total MSA population in 2005.
- (4) The proportions of students in the 2006 calibration sample classified as proficient or better were compared with the proportions in the same schools in 2005 and in the 2005 MSA total population.

Figures 31 to 36 show the test characteristic curves and standard errors for Form 1 and Form 2 at each grade level. At every grade level, the test characteristic curves and standard errors for the two forms are nearly identical throughout most of the ability range.

Table 17 shows the equated scale score means and standard deviations for the two test forms at each grade for the 2006 calibration sample and for the same schools in 2005. The two forms differed by less than 1 scale score point for grades 4 through 8. In grade 3, the means on the two forms differed by approximately 3.5 scale score points.

Table 18 compares the equated scale score means for the 2006 calibration sample with the MSA total population means in 2004 and 2005. The 2006 calibration means were higher at every grade level than the 2005 population means. These patterns appear to be consistent with the calibration and operational test results in prior years.

The calibration sample scale score distributions for 2006 appear to be relatively normal, and are very similar to the 2005 distributions for the total population. These scale score distributions are shown in Figures 37 to 42.

Finally, the proportions of students achieving proficient or better performance in the 2006 calibration sample were compared to the proportions in the same schools in 2005 and in the total 2005 MSA population. These comparisons are shown in Figure 43. As expected from the year-to-year increases in mean scores, the proportion of students achieving proficient or better performance at each grade level in 2006 is higher than the proportion in 2005. The general trend across grades in 2006 is similar to 2005, with the proportion of students at or above proficient performance decreasing monotonically from Grade 4 to Grade 8.

Table 1. Schools in the 2006 MSA Calibration Sample

LEA	School #	School Name	LEA	School #	School Name	LEA	School #	School Name	LEA	School #	School Name
1	702	BEL AIR ELEM		310	GILPIN MANOR		333	BENJAMN BAN M	21	401	CLEAR SPG MID
	802	WESTMAR MIDL		513	CHARLESTOWN E		420	BANNOCKBURN E		903	OLD FORGE ELE
	2902	PARKSIDE ELEM		801	CONOWINGO ELE		514	JUDITH A RES		2301	CONOCOCHIEAGUE
2	1152	LINTHICUM ELE	8	503	PICCOWAXEN MI		553	GAITHERS ELEM	22	406	PITTSVILLE EL
	2043	SEVRNA P MID		609	DR JAMES CRA		603	SEVEN LOCKS E	23	208	SNOW HILL MID
	2072	BENFIELD ELEM		612	ARTHUR MIDDLE		708	KINGSVIEW MID	30	209	WINSTON MIDL
	2092	CAPE ST CLAI		617	DANIEL OF ST		786	GEORGIAN FORE		10	J MCHENRY ELE
	2212	SOLLEY ELEMEN		618	WILLIAM B WA		788	WHEATON WOODS		22	GEOR WASH ELE
	3072	CROFTON ELEME		902	MALCOLM ELEME		803	FOREST KNOLLS		24	WESTSIDE ELEM
	3122	MANOR VIEW EL	9	208	N DORCHESTR M		818	COL E BROOK		25	DR RAYNER BR
	3152	VAN BOKKELEN	10	222	MONOCACY EL	16	802	BADEN ELEMENT		45	FEDERAL HILL
	3343	OLD MILL S		223	BALLENGR C EL		505	EUGENE BURROU		46	CHINQUAPIN MI
	3362	CROFTON MEADO		303	MIDDLETOWN EL		617	F S K ELEMEN		51	WAVERLY ELEME
	4182	GERMANTWN ELE		2302	HILLCREST ELE		305	PATUXENT ELEM		61	J EAGER HOW E
	4192	HILLSMERE ELE		2305	BALLENGR C MS		109	JAMES H HARR		63	ROSEMONT ELEM
	4202	LOTHIAN ELEME		2403	WAVERLEY ELEM		606	BRADBURY HEIG		80	WEST BALTIMOR
	4222	MILLS PAROL	11	707	BROAD FORD EL		624	BERKSHIRE ELE		83	WM PACA ELEME
3	104	EDMONDSON HEI		812	SWAN MEADOW S		648	SAMUEL P MAS		124	BAYBROOK ELE
	112	DOGWOOD ELEME	12	121	EMMORTON ELEM		651	THOMAS CLAGGE		234	ARLINGTON ELE
	115	HILLCREST EL		211	G LISBY ELEM		912	ISAAC J GOUR		239	BENJAMIN FRAN
	402	OWINGS MIL EL		335	HOMESTEAD WAK		1009	OAKLANDS ELEM	31	107	GILMOR ELEMEN
	407	GLYNDON ELEME		374	SOUTHAMPTON M		1010	DWIGHT D EIS			
	451	FRANKLIN MIDD		522	DUBLIN ELEMEN		1214	GLASSMANOR EL			
	811	PINEWOOD ELEM	13	208	NORTHFIELD EL		1307	HIGHLAND PARK			
	921	PINE GROVE EL		101	ELKRIDGE ELEM		1333	JUDGE SYLVANI			
	1205	BERKSIRE EL		217	HOLLIFIELD ST		1510	JAMES MADISON			
	1251	DUNDALK MIDL		307	FOLLY QUARTER		1710	RIDGECREST EL			
	1310	RELAY ELEMENT		515	RUNNING BROOK		1908	WILLIAM WIRT			
	1505	VICTORY VILLA		613	JEFFERS HILL		2113	SPRINGHILL LA			
	1513	SUSSEX ELEMEN		625	GORMAN CROSSI	17	302	KENNARD ELEME			
4	114	ST LEONARD EL	14	503	ROCK HALL MID		404	STEVENSVILLE			
	302	BEACH ELEMENT		106	GALENA MIDDLE	18	404	MARGRT BRNT M			
	315	NORTHERN MID	15	812	PARKLAND MIDD		504	MECHANICSV EL			
5	401	PRESTON ELEME		102	GERMANTOWN EL		805	GEOR WASH CAR			
6	302	C C ELEMENTAR		153	POOLESVILLE E	19	102	WASHINGTON HI			
	505	FREEDOM DISTR		209	LAKEWOOD ELE		301	MARION SARAH			
	701	WESTM EAST MI		236	MARK TWAIN SC		1303	SOMERSET 6 7			
	714	FRIENDSHIP VA		305	JACKSON ROAD	20	401	CHAPEL DISTRI			
7	206	BOHEMIA MAN M		316	STONEGATE ELE		106	EASTON MIDDLE			

Table 2. Comparative Demographics by Gender

Grade	Gender	2005 Population		2006 Calibration Sample	
		Frequency	Percent*	Frequency	Percent*
3	Female	30115	49.0	3687	49.0
	Male	31387	51.0	3844	51.0
	<i>Not Specified</i>	7		18	
	Total	61509		7549	
4	Female	30873	48.7	3714	49.2
	Male	32449	51.2	3832	50.8
	<i>Not Specified</i>	8		8	
	Total	63330		7554	
5	Female	31501	48.4	3882	49.3
	Male	33616	51.6	3987	50.7
	<i>Not Specified</i>	6		16	
	Total	65123		7885	
6	Female	31969	48.6	3919	48.7
	Male	33855	51.4	4135	51.3
	<i>Not Specified</i>	22		19	
	Total	65846		8073	
7	Female	32983	48.4	4128	49.9
	Male	35126	51.6	4142	50.0
	<i>Not Specified</i>	21		31	
	Total	68130		8301	
8	Female	33626	48.9	4083	48.1
	Male	35063	51.0	4399	51.9
	<i>Not Specified</i>	7		28	
	Total	68659		8510	

* Percentages in this table exclude students who did not specify gender.

Table 3. Comparative Demographics by Race

Grade	Race	2005 Population		2006 Calibration Sample	
		Frequency	Percent*	Frequency	Percent*
3	Native American	238	0.4	43	0.6
	Asian/Pacific Islander	3235	5.3	396	5.3
	African American	22963	37.3	2807	37.3
	White	30221	49.1	3623	48.2
	Hispanic	4842	7.9	651	8.7
	<i>Not Specified</i>	10		29	
	Total	61509		7549	
4	Native American	255	0.4	27	0.4
	Asian/Pacific Islander	3245	5.1	401	5.3
	African American	24030	37.9	2738	36.3
	White	31130	49.2	3781	50.2
	Hispanic	4660	7.4	591	7.8
	<i>Not Specified</i>	10		16	
	Total	63330		7554	
5	Native American	261	0.4	41	0.5
	Asian/Pacific Islander	3211	4.9	436	5.5
	African American	25405	39.0	2826	35.9
	White	31636	48.6	3981	50.6
	Hispanic	4601	7.1	577	7.3
	<i>Not Specified</i>	9		24	
	Total	65123		7885	
6	Native American	262	0.4	23	0.3
	Asian/Pacific Islander	3129	4.8	329	4.1
	African American	26151	39.7	3221	40.2
	White	31910	48.5	3905	48.8
	Hispanic	4365	6.6	530	6.6
	<i>Not Specified</i>	29		65	
	Total	65846		8073	
7	Native American	217	0.3	40	0.5
	Asian/Pacific Islander	3221	4.7	305	3.7
	African American	26831	39.4	3253	39.5
	White	33528	49.2	4057	49.3
	Hispanic	4304	6.3	579	7.0
	<i>Not Specified</i>	29		67	
	Total	68130		8301	
8	Native American	241	0.4	22	0.3
	Asian/Pacific Islander	3216	4.7	342	4.0
	African American	26481	38.5	3265	38.6
	White	34489	50.2	4256	50.4
	Hispanic	4253	6.2	565	6.7
	<i>Not Specified</i>	16		60	
	Total	68696		8510	

* Percentages in this table exclude students who did not specify race.

Table 4a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 3 Form 1

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
4529	0.7460	52.9629	10.8731	71	3	71	0.9216	3.0442
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
1		4525	4	0.88	0.26	0.09%		
2		4517	12	0.93	0.23	0.27%		
4		4505	24	0.91	0.29	0.53%		
10		4521	8	0.91	0.35	0.18%		
12		4516	13	0.91	0.34	0.29%		
13		4517	12	0.89	0.43	0.27%		
14		4523	6	0.91	0.27	0.13%		
16		4521	8	0.97	0.23	0.18%		
17		4524	5	0.92	0.27	0.11%		
18		4518	11	0.98	0.12	0.24%		
24		4518	11	0.98	0.21	0.24%		
31	A	4486	43	0.65	0.47	0.95%		
31	B	4485	44	0.67	0.49	0.97%		
32		4504	25	0.65	0.34	0.55%		
34		4504	25	0.69	0.44	0.55%		
35		4505	24	0.95	0.34	0.53%		
36		4507	22	0.92	0.36	0.49%		
37		4507	22	0.50	0.24	0.49%		
38	A	4475	54	0.78	0.34	1.19%		
38	B	4475	54	0.44	0.41	1.19%		
39		4506	23	0.84	0.57	0.51%		
40		4509	20	0.93	0.31	0.44%		
41		4490	39	0.81	0.51	0.86%		
42		4509	20	0.88	0.21	0.44%		
43		4497	32	0.64	0.25	0.71%		
44		4510	19	0.81	0.42	0.42%		
45	A	4444	85	0.41	0.45	1.88%		
45	B	4414	115	0.33	0.49	2.54%		
46		4491	38	0.66	0.47	0.84%		
47		4485	44	0.85	0.38	0.97%		
48		4472	57	0.61	0.54	1.26%		
49		4468	61	0.79	0.40	1.35%		
50		4457	72	0.64	0.44	1.59%		
51		4510	19	0.77	0.49	0.42%		
52		4515	14	0.83	0.48	0.31%		
53		4513	16	0.49	0.40	0.35%		
54		4507	22	0.87	0.39	0.49%		
55		4500	29	0.92	0.43	0.64%		
56		4511	18	0.91	0.25	0.40%		
57		4518	11	0.88	0.35	0.24%		
58	A	4509	20	0.92	0.33	0.44%		
58	B	4496	33	0.44	0.40	0.73%		
59		4507	22	0.95	0.30	0.49%		

Table 4a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 3 Form 1 (cont'd)

itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
60		4512	17	0.80	0.39	0.38%		
61		4425	104	0.85	0.37	2.30%		
62		4501	28	0.55	0.46	0.62%		
63		4500	29	0.83	0.38	0.64%		
64		4497	32	0.59	0.47	0.71%		
65		4506	23	0.87	0.47	0.51%		
66	A	4408	121	0.83	0.28	2.67%		
66	B	4476	53	0.53	0.49	1.17%		
67		4507	22	0.84	0.20	0.49%		
68		4514	15	0.74	0.43	0.33%		
69		4514	15	0.59	0.45	0.33%		
70		4514	15	0.96	0.26	0.33%		
71		4507	22	0.79	0.52	0.49%		
72	A	4497	32	0.82	0.36	0.71%		
72	B	4490	39	0.72	0.37	0.86%		
73		4507	22	0.84	0.47	0.49%		
74		4506	23	0.31	0.20	0.51%		
75		4486	43	0.97	0.24	0.95%		
76		4491	38	0.66	0.52	0.84%		
77	A	4503	26	0.86	0.42	0.57%		
77	B	4483	46	0.62	0.51	1.02%		

Table 4b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 3 Form 2

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
3020	0.7548	53.9540	10.8264	70	10	71	0.9241	2.9821
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
1		3020	0	0.88	0.26	0.00%		
2		3017	3	0.94	0.19	0.10%		
4		3007	13	0.90	0.29	0.43%		
10		3017	3	0.91	0.38	0.10%		
12		3012	8	0.92	0.34	0.26%		
13		3013	7	0.89	0.41	0.23%		
14		3017	3	0.91	0.26	0.10%		
16		3018	2	0.97	0.23	0.07%		
17		3017	3	0.94	0.26	0.10%		
18		3014	6	0.98	0.13	0.20%		
24		3017	3	0.99	0.22	0.10%		
31	A	3012	8	0.81	0.44	0.26%		
31	B	3002	18	0.48	0.49	0.60%		
32		3012	8	0.67	0.34	0.26%		
34		3004	16	0.71	0.43	0.53%		
35		2989	31	0.68	0.53	1.03%		
36		3004	16	0.93	0.32	0.53%		
37		3000	20	0.49	0.25	0.66%		
38	A	2954	66	0.70	0.41	2.19%		
38	B	2977	43	0.37	0.46	1.42%		
39		3012	8	0.87	0.55	0.26%		
40		3012	8	0.93	0.32	0.26%		
41		2999	21	0.81	0.49	0.70%		
42		3010	10	0.89	0.21	0.33%		
43		3013	7	0.82	0.55	0.23%		
44		3006	14	0.69	0.43	0.46%		
45	A	2955	65	0.62	0.26	2.15%		
45	B	2948	72	0.61	0.51	2.38%		
46		2998	22	0.43	0.43	0.73%		
47		2987	33	0.75	0.35	1.09%		
48		2971	49	0.88	0.46	1.62%		
49		2971	49	0.80	0.37	1.62%		
50		2955	65	0.35	0.23	2.15%		
51		3009	11	0.53	0.45	0.36%		
52		3019	1	0.96	0.35	0.03%		
53		3012	8	0.79	0.50	0.26%		
54		2990	30	0.88	0.37	0.99%		
55		3009	11	0.95	0.36	0.36%		
56		3008	12	0.84	0.48	0.40%		
57		3017	3	0.89	0.33	0.10%		
58	A	3018	2	0.99	0.20	0.07%		
58	B	3003	17	0.44	0.53	0.56%		
59		3007	13	0.95	0.28	0.43%		
60		3009	11	0.79	0.41	0.36%		

Table 4b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 3 Form 2 (cont'd)

itemno	Part	N	N_Miss	P_Val	CORR	Pct_Omit		
61		2970	50	0.83	0.39	1.66%		
62		3005	15	0.84	0.35	0.50%		
63		2999	21	0.92	0.21	0.70%		
64		3004	16	0.55	0.45	0.53%		
65		3002	18	0.88	0.41	0.60%		
66	A	2996	24	0.72	0.53	0.79%		
66	B	2977	43	0.68	0.51	1.42%		
67		3013	7	0.84	0.18	0.23%		
68		3006	14	0.76	0.46	0.46%		
69		3016	4	0.67	0.47	0.13%		
70		3012	8	0.61	0.41	0.26%		
71		3010	10	0.63	0.54	0.33%		
72	A	2990	30	0.76	0.55	0.99%		
72	B	2982	38	0.50	0.55	1.26%		
73		3009	11	0.83	0.50	0.36%		
74		3013	7	0.95	0.31	0.23%		
75		3004	16	0.98	0.18	0.53%		
76		3012	8	0.95	0.30	0.26%		
77	A	2901	119	0.76	0.53	3.94%		
77	B	2999	21	0.66	0.52	0.70%		

Table 5a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 4 Form 1

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
4550	0.6625	46.3763	13.6330	70	4	70	0.9376	3.4044
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
1		4548	2	0.85	0.30	0.04%		
2		4546	4	0.71	0.33	0.09%		
3		4546	4	0.85	0.36	0.09%		
4		4515	35	0.62	0.38	0.77%		
10		3998	552	0.56	0.41	12.13%		
17		4547	3	0.93	0.36	0.07%		
18		4539	11	0.59	0.41	0.24%		
20		4547	3	0.75	0.42	0.07%		
27		4529	21	0.66	0.40	0.46%		
31		4499	51	0.54	0.46	1.12%		
33	A	4536	14	0.79	0.30	0.31%		
33	B	4530	20	0.58	0.35	0.44%		
34		4533	17	0.56	0.43	0.37%		
35		4544	6	0.81	0.43	0.13%		
36		4540	10	0.66	0.53	0.22%		
37		4538	12	0.85	0.40	0.26%		
38		4543	7	0.80	0.34	0.15%		
39		4535	15	0.79	0.38	0.33%		
40	A	4459	91	0.77	0.27	2.00%		
40	B	4447	103	0.39	0.45	2.26%		
41		4525	25	0.72	0.44	0.55%		
42		4526	24	0.56	0.50	0.53%		
43		4527	23	0.59	0.49	0.51%		
44		4509	41	0.42	0.34	0.90%		
45		4509	41	0.90	0.31	0.90%		
46		4489	61	0.41	0.41	1.34%		
47	A	4369	181	0.59	0.59	3.98%		
47	B	4366	184	0.56	0.62	4.04%		
48		4402	148	0.66	0.36	3.25%		
49		4397	153	0.78	0.36	3.36%		
50		4388	162	0.90	0.28	3.56%		
51		4375	175	0.72	0.33	3.85%		
52		4369	181	0.66	0.42	3.98%		
53		4540	10	0.85	0.38	0.22%		
54		4541	9	0.70	0.39	0.20%		
55		4544	6	0.91	0.28	0.13%		
56		4539	11	0.56	0.36	0.24%		
58		4534	16	0.53	0.44	0.35%		
59		4538	12	0.86	0.38	0.26%		
60	A	4464	86	0.54	0.54	1.89%		
60	B	4440	110	0.43	0.61	2.42%		
61		4538	12	0.76	0.35	0.26%		
62		4537	13	0.86	0.39	0.29%		
63		4532	18	0.88	0.37	0.40%		
64		4530	20	0.80	0.40	0.44%		

Table 5a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 4 Form 1 (cont'd)

itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
65		4528	22	0.81	0.49	0.48%		
66		4526	24	0.73	0.51	0.53%		
67		4507	43	0.81	0.46	0.95%		
68	A	4407	143	0.39	0.52	3.14%		
68	B	4405	145	0.65	0.67	3.19%		
69		4547	3	0.72	0.36	0.07%		
70		4545	5	0.30	0.18	0.11%		
71		4543	7	0.66	0.39	0.15%		
72		4540	10	0.54	0.43	0.22%		
73		4537	13	0.82	0.43	0.29%		
74	A	4512	38	0.57	0.61	0.84%		
74	B	4511	39	0.66	0.67	0.86%		
75		4538	12	0.47	0.40	0.26%		
76		4535	15	0.83	0.48	0.33%		
77		4533	17	0.71	0.36	0.37%		
78		4512	38	0.60	0.38	0.84%		
79	A	4233	317	0.70	0.41	6.97%		
79	B	4340	210	0.48	0.49	4.62%		

Table 5b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 4 Form 2

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
3004	0.6422	45.5939	13.8749	71	7	71	0.9367	3.4902
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
1		3002	2	0.84	0.32	0.07%		
2		3000	4	0.71	0.38	0.13%		
3		2995	9	0.86	0.34	0.30%		
4		2976	28	0.65	0.39	0.93%		
10		2598	406	0.55	0.40	13.52%		
17		3000	4	0.92	0.41	0.13%		
18		2995	9	0.59	0.39	0.30%		
20		2998	6	0.77	0.39	0.20%		
27		2991	13	0.66	0.37	0.43%		
31		2975	29	0.54	0.45	0.97%		
33	A	2961	43	0.75	0.46	1.43%		
33	B	2955	49	0.44	0.56	1.63%		
34		2998	6	0.81	0.43	0.20%		
35		2996	8	0.75	0.34	0.27%		
36		2995	9	0.71	0.41	0.30%		
37		2991	13	0.67	0.54	0.43%		
38		2992	12	0.63	0.36	0.40%		
39		2994	10	0.85	0.37	0.33%		
40	A	2937	67	0.81	0.28	2.23%		
40	B	2927	77	0.41	0.46	2.56%		
41		2995	9	0.56	0.50	0.30%		
42		2992	12	0.62	0.47	0.40%		
43		2988	16	0.75	0.32	0.53%		
44		2988	16	0.71	0.40	0.53%		
45		2977	27	0.48	0.36	0.90%		
46		2972	32	0.90	0.29	1.07%		
47	A	2889	115	0.55	0.50	3.83%		
47	B	2894	110	0.44	0.60	3.66%		
48		2931	73	0.60	0.51	2.43%		
49		2902	102	0.50	0.47	3.40%		
50		2898	106	0.75	0.33	3.53%		
51		2897	107	0.90	0.28	3.56%		
52		2894	110	0.87	0.36	3.66%		
53		3001	3	0.83	0.39	0.10%		
54		3002	2	0.91	0.26	0.07%		
55		2999	5	0.56	0.35	0.17%		
56		2999	5	0.76	0.36	0.17%		
57		3002	2	0.53	0.48	0.07%		
58		3000	4	0.75	0.34	0.13%		
59		2997	7	0.68	0.51	0.23%		
60	A	2988	16	0.96	0.18	0.53%		
60	B	2975	29	0.50	0.43	0.97%		
61		2996	8	0.65	0.36	0.27%		

Table 5b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 4 Form 2 (cont'd)

itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
62		2997	7	0.86	0.40	0.23%		
63		2990	14	0.72	0.45	0.47%		
64		2986	18	0.57	0.46	0.60%		
65		2982	22	0.75	0.49	0.73%		
66		2973	31	0.53	0.42	1.03%		
67		2961	43	0.79	0.45	1.43%		
68	A	2925	79	0.66	0.52	2.63%		
68	B	2914	90	0.47	0.51	3.00%		
69		3001	3	0.72	0.34	0.10%		
70		2997	7	0.37	0.28	0.23%		
71		2998	6	0.81	0.48	0.20%		
72		2995	9	0.52	0.43	0.30%		
73		2998	6	0.82	0.40	0.20%		
74	A	2972	32	0.26	0.48	1.07%		
74	B	2960	44	0.41	0.60	1.47%		
75		2992	12	0.38	0.43	0.40%		
76		2988	16	0.70	0.38	0.53%		
77		2984	20	0.77	0.41	0.67%		
78		2967	37	0.58	0.40	1.23%		
79	A	2913	91	0.51	0.53	3.03%		
79	B	2912	92	0.52	0.56	3.06%		

Table 6a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 5 Form 1

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
4732	0.6448	47.7139	13.7144	74	5	74	0.9354	3.4847
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
2		4701	31	0.79	0.43	0.66%		
4		4705	27	0.72	0.43	0.57%		
6		4667	65	0.85	0.35	1.37%		
8		4523	209	0.65	0.39	4.42%		
12		4724	8	0.79	0.45	0.17%		
13		4725	7	0.81	0.24	0.15%		
17		4719	13	0.67	0.12	0.27%		
23		4720	12	0.72	0.49	0.25%		
26		4716	16	0.60	0.49	0.34%		
27		4703	29	0.71	0.52	0.61%		
28		4707	25	0.68	0.37	0.53%		
31		4684	48	0.64	0.48	1.01%		
32		4680	52	0.89	0.37	1.10%		
33	A	4641	91	0.59	0.44	1.92%		
33	B	4639	93	0.40	0.45	1.97%		
34		4703	29	0.57	0.53	0.61%		
35		4721	11	0.86	0.46	0.23%		
36		4701	31	0.64	0.26	0.66%		
37		4717	15	0.64	0.26	0.32%		
38		4707	25	0.43	0.48	0.53%		
39		4709	23	0.75	0.44	0.49%		
40	A	4625	107	0.82	0.36	2.26%		
40	B	4692	40	0.45	0.45	0.85%		
41		4710	22	0.68	0.42	0.46%		
42		4695	37	0.83	0.35	0.78%		
43		4684	48	0.39	0.29	1.01%		
44		4676	56	0.39	0.33	1.18%		
45		4672	60	0.86	0.36	1.27%		
46		4651	81	0.56	0.31	1.71%		
47	A	4366	366	0.40	0.49	7.74%		
47	B	4341	391	0.36	0.61	8.26%		
48		4504	228	0.59	0.48	4.82%		
49		4475	257	0.85	0.33	5.43%		
50		4418	314	0.50	0.34	6.64%		
51		4418	314	0.75	0.30	6.64%		
52		4406	326	0.50	0.23	6.89%		
53		4730	2	0.84	0.35	0.04%		
54		4724	8	0.49	0.42	0.17%		
55		4729	3	0.84	0.38	0.06%		
56		4725	7	0.70	0.41	0.15%		
57	A	4650	82	0.42	0.51	1.73%		
57	B	4639	93	0.54	0.55	1.97%		
58		4719	13	0.77	0.41	0.27%		
59		4724	8	0.95	0.20	0.17%		

Table 6a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 5 Form 1 (cont'd)

itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
60		4710	22	0.77	0.48	0.46%		
61		4708	24	0.58	0.42	0.51%		
62		4704	28	0.79	0.40	0.59%		
63	A	4586	146	0.80	0.53	3.09%		
63	B	4576	156	0.69	0.53	3.30%		
64	A	4591	141	0.95	0.19	2.98%		
64	B	4569	163	0.60	0.43	3.45%		
65		4724	8	0.90	0.30	0.17%		
66		4726	6	0.82	0.41	0.13%		
67		4725	7	0.72	0.46	0.15%		
68		4727	5	0.80	0.39	0.11%		
69		4724	8	0.56	0.45	0.17%		
70	A	4672	60	0.38	0.51	1.27%		
70	B	4658	74	0.39	0.53	1.56%		
71		4720	12	0.79	0.36	0.25%		
72		4715	17	0.64	0.49	0.36%		
73		4711	21	0.85	0.28	0.44%		
74		4693	39	0.85	0.36	0.82%		
75		4678	54	0.63	0.44	1.14%		
76	A	4564	168	0.48	0.58	3.55%		
76	B	4516	216	0.51	0.61	4.57%		

Table 6b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 5 Form 2

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
3153	0.6321	46.7764	13.8842	73	9	74	0.9363	3.5040
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
2		3144	9	0.79	0.43	0.29%		
4		3140	13	0.73	0.42	0.41%		
6		3119	34	0.84	0.37	1.08%		
8		3037	116	0.66	0.41	3.68%		
12		3152	1	0.79	0.42	0.03%		
13		3153	0	0.82	0.28	0.00%		
17		3148	5	0.67	0.11	0.16%		
23		3149	4	0.72	0.51	0.13%		
26		3149	4	0.61	0.50	0.13%		
27		3145	8	0.72	0.53	0.25%		
28		3139	14	0.68	0.35	0.44%		
31		3133	20	0.66	0.48	0.63%		
32		3133	20	0.88	0.38	0.63%		
33	A	3015	138	0.73	0.28	4.38%		
33	B	3128	25	0.55	0.33	0.79%		
34		3148	5	0.70	0.56	0.16%		
35		3151	2	0.85	0.41	0.06%		
36		3148	5	0.65	0.28	0.16%		
37		3141	12	0.63	0.24	0.38%		
38		3149	4	0.76	0.45	0.13%		
39		3146	7	0.60	0.23	0.22%		
40	A	3007	146	0.66	0.39	4.63%		
40	B	3094	59	0.49	0.64	1.87%		
41		3143	10	0.70	0.40	0.32%		
42		3145	8	0.83	0.35	0.25%		
43		3140	13	0.38	0.31	0.41%		
44		3127	26	0.42	0.36	0.82%		
45		3126	27	0.87	0.36	0.86%		
46		3106	47	0.56	0.34	1.49%		
47	A	3051	102	0.40	0.53	3.24%		
47	B	3036	117	0.59	0.61	3.71%		
48		3025	128	0.65	0.39	4.06%		
49		3016	137	0.85	0.31	4.35%		
50		2986	167	0.50	0.37	5.30%		
51		2987	166	0.48	0.36	5.27%		
52		2961	192	0.58	0.45	6.09%		
53		3152	1	0.74	0.29	0.03%		
54		3152	1	0.84	0.34	0.03%		
55		3145	8	0.49	0.42	0.25%		
56		3130	23	0.59	0.50	0.73%		
57	A	3116	37	0.32	0.51	1.17%		
57	B	3111	42	0.52	0.58	1.33%		
58		3145	8	0.78	0.46	0.25%		
59		3145	8	0.71	0.40	0.25%		

Table 6b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 5 Form 2 (cont'd)

itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
60		3144	9	0.83	0.38	0.29%		
61		3140	13	0.56	0.43	0.41%		
62		3135	18	0.78	0.38	0.57%		
63	A	3112	41	0.86	0.30	1.30%		
63	B	3122	31	0.57	0.37	0.98%		
64	A	3016	137	0.36	0.44	4.35%		
64	B	2997	156	0.28	0.48	4.95%		
65		3151	2	0.87	0.35	0.06%		
66		3152	1	0.84	0.40	0.03%		
67		3150	3	0.67	0.51	0.10%		
68		3151	2	0.79	0.40	0.06%		
69		3151	2	0.58	0.46	0.06%		
70	A	3118	35	0.38	0.52	1.11%		
70	B	3106	47	0.37	0.52	1.49%		
71		3151	2	0.79	0.34	0.06%		
72		3148	5	0.66	0.49	0.16%		
73		3140	13	0.84	0.27	0.41%		
74		3132	21	0.85	0.39	0.67%		
75		3124	29	0.64	0.41	0.92%		
76	A	3064	89	0.47	0.58	2.82%		
76	B	3047	106	0.50	0.61	3.36%		

Table 7a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 6 Form 1

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
4848	0.5645	39.5126	15.4137	70	0	70	0.9471	3.5449
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
6		4741	107	0.72	0.45	2.21%		
13		4832	16	0.81	0.46	0.33%		
17		4826	22	0.76	0.42	0.45%		
18		4816	32	0.77	0.47	0.66%		
20		4822	26	0.71	0.54	0.54%		
32		4822	26	0.54	0.51	0.54%		
33		4818	30	0.81	0.39	0.62%		
34		4825	23	0.36	0.35	0.47%		
35		4809	39	0.64	0.37	0.80%		
36		4821	27	0.82	0.47	0.56%		
37		4815	33	0.51	0.59	0.68%		
38		4819	29	0.70	0.44	0.60%		
39		4802	46	0.66	0.41	0.95%		
40	A	4585	263	0.55	0.54	5.43%		
40	B	4673	175	0.34	0.66	3.61%		
41		4805	43	0.66	0.36	0.89%		
42		4812	36	0.58	0.41	0.74%		
43		4807	41	0.77	0.40	0.85%		
44		4797	51	0.52	0.38	1.05%		
45		4794	54	0.70	0.52	1.11%		
46		4771	77	0.47	0.26	1.59%		
47		4777	71	0.44	0.44	1.47%		
48		4770	78	0.42	0.46	1.61%		
49	A	4284	564	0.47	0.52	11.63%		
49	B	4253	595	0.39	0.58	12.27%		
50		4658	190	0.52	0.38	3.92%		
51		4653	195	0.59	0.43	4.02%		
52		4640	208	0.45	0.35	4.29%		
53		4611	237	0.40	0.32	4.89%		
54		4596	252	0.52	0.32	5.20%		
55		4561	287	0.27	0.41	5.92%		
56		4531	317	0.59	0.31	6.54%		
57		4522	326	0.57	0.52	6.72%		
58		4816	32	0.67	0.42	0.66%		
59		4816	32	0.46	0.44	0.66%		
60		4802	46	0.64	0.38	0.95%		
61		4805	43	0.54	0.53	0.89%		
62		4793	55	0.67	0.39	1.13%		
63	A	4648	200	0.39	0.57	4.13%		
63	B	4614	234	0.34	0.65	4.83%		
64		4811	37	0.79	0.35	0.76%		
65		4798	50	0.86	0.43	1.03%		
66		4795	53	0.84	0.30	1.09%		
67		4773	75	0.61	0.44	1.55%		

Table 7a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 6 Form 1 (cont'd)

itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
68	A	4643	205	0.74	0.51	4.23%		
68	B	4629	219	0.57	0.32	4.52%		
69	A	4491	357	0.40	0.31	7.36%		
69	B	4460	388	0.56	0.62	8.00%		
70		4810	38	0.73	0.39	0.78%		
71		4807	41	0.51	0.38	0.85%		
72		4808	40	0.65	0.48	0.83%		
73		4802	46	0.37	0.35	0.95%		
74		4797	51	0.49	0.29	1.05%		
75	A	4728	120	0.55	0.68	2.48%		
75	B	4678	170	0.49	0.69	3.51%		
76		4796	52	0.49	0.45	1.07%		
77		4797	51	0.72	0.46	1.05%		
78		4785	63	0.55	0.34	1.30%		
79		4778	70	0.72	0.54	1.44%		
80		4770	78	0.61	0.47	1.61%		
81	A	4581	267	0.54	0.53	5.51%		
81	B	4547	301	0.49	0.60	6.21%		

Table 7b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 6 Form 2

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
3225	0.5636	39.4546	14.9091	69	0	70	0.9432	3.5544
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
6		3131	94	0.73	0.44	2.92%		
13		3209	16	0.81	0.44	0.50%		
17		3203	22	0.77	0.40	0.68%		
18		3203	22	0.76	0.47	0.68%		
20		3206	19	0.70	0.57	0.59%		
32		3201	24	0.54	0.54	0.74%		
33		3207	18	0.90	0.26	0.56%		
34		3200	25	0.39	0.37	0.78%		
35		3204	21	0.80	0.45	0.65%		
36		3200	25	0.65	0.36	0.78%		
37		3198	27	0.52	0.61	0.84%		
38		3196	29	0.70	0.45	0.90%		
39		3191	34	0.71	0.44	1.05%		
40	A	3036	189	0.65	0.51	5.86%		
40	B	3081	144	0.47	0.67	4.47%		
41		3187	38	0.66	0.31	1.18%		
42		3193	32	0.56	0.40	0.99%		
43		3159	66	0.47	0.27	2.05%		
44		3179	46	0.71	0.52	1.43%		
45		3185	40	0.76	0.50	1.24%		
46		3178	47	0.46	0.48	1.46%		
47		3170	55	0.41	0.39	1.71%		
48		3161	64	0.31	0.30	1.98%		
49	A	3044	181	0.58	0.55	5.61%		
49	B	3027	198	0.52	0.63	6.14%		
50		3138	87	0.81	0.37	2.70%		
51		3123	102	0.40	0.49	3.16%		
52		3095	130	0.34	0.27	4.03%		
53		3075	150	0.39	0.31	4.65%		
54		3079	146	0.55	0.35	4.53%		
55		3056	169	0.41	0.34	5.24%		
56		3042	183	0.62	0.42	5.67%		
57		3001	224	0.30	0.22	6.95%		
58		3203	22	0.75	0.48	0.68%		
59		3198	27	0.66	0.40	0.84%		
60		3197	28	0.47	0.47	0.87%		
61		3207	18	0.79	0.34	0.56%		
62		3181	44	0.52	0.30	1.36%		
63	A	3102	123	0.47	0.56	3.81%		
63	B	3100	125	0.44	0.53	3.88%		
64		3179	46	0.60	0.38	1.43%		
65		3188	37	0.85	0.28	1.15%		
66		3174	51	0.83	0.43	1.58%		

Table 7b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 6 Form 2 (cont'd)

itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
67		3153	72	0.60	0.42	2.23%		
68	A	2931	294	0.39	0.59	9.12%		
68	B	2915	310	0.46	0.47	9.61%		
69	A	2875	350	0.36	0.30	10.85%		
69	B	2833	392	0.53	0.59	12.16%		
70		3205	20	0.68	0.39	0.62%		
71		3206	19	0.54	0.41	0.59%		
72		3204	21	0.34	0.06	0.65%		
73		3205	20	0.78	0.38	0.62%		
74		3200	25	0.49	0.46	0.78%		
75	A	3113	112	0.37	0.65	3.47%		
75	B	3075	150	0.44	0.73	4.65%		
76		3196	29	0.52	0.29	0.90%		
77		3199	26	0.73	0.32	0.81%		
78		3193	32	0.26	0.17	0.99%		
79		3191	34	0.78	0.49	1.05%		
80		3180	45	0.70	0.53	1.40%		
81	A	2994	231	0.56	0.58	7.16%		
81	B	2982	243	0.41	0.61	7.54%		

Table 8a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 7 Form 1

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
4982	0.5247	37.7766	16.7338	71	0	72	0.9549	3.5541
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
3		4913	69	0.52	0.43	1.39%		
9		4591	391	0.69	0.38	7.85%		
13		4960	22	0.64	0.57	0.44%		
15		4966	16	0.91	0.31	0.32%		
24		4950	32	0.60	0.56	0.64%		
32		4895	87	0.52	0.42	1.75%		
33	A	4623	359	0.32	0.59	6.70%		
33	B	4587	395	0.51	0.62	7.39%		
34		4933	49	0.44	0.49	0.98%		
35		4937	45	0.32	0.41	0.90%		
36		4948	34	0.49	0.48	0.68%		
37		4926	56	0.66	0.59	1.12%		
38		4934	48	0.55	0.47	0.96%		
39		4942	40	0.62	0.57	0.80%		
40		4947	35	0.74	0.56	0.70%		
41		4942	40	0.48	0.58	0.80%		
42		4945	37	0.64	0.30	0.74%		
43	A	4789	193	0.72	0.51	3.63%		
43	B	4769	213	0.73	0.52	4.01%		
44		4920	62	0.63	0.43	1.24%		
45		4917	65	0.60	0.53	1.31%		
46		4916	66	0.62	0.46	1.33%		
47		4907	75	0.59	0.39	1.51%		
48		4901	81	0.52	0.19	1.63%		
49		4899	83	0.51	0.54	1.67%		
50		4888	94	0.28	0.36	1.89%		
51		4854	128	0.37	0.36	2.57%		
52		4855	127	0.62	0.49	2.55%		
53	A	4139	843	0.29	0.51	16.76%		
53	B	4145	837	0.18	0.58	15.40%		
54		4560	422	0.64	0.53	8.47%		
55		4530	452	0.56	0.61	9.07%		
56		4417	565	0.45	0.64	11.34%		
57		4354	628	0.22	0.50	12.61%		
58		4945	37	0.54	0.48	0.74%		
59		4932	50	0.78	0.33	1.00%		
60		4948	34	0.74	0.56	0.68%		
61		4949	33	0.72	0.40	0.66%		
62		4936	46	0.31	0.29	0.92%		
63	A	4861	121	0.78	0.37	2.41%		
63	B	4862	120	0.62	0.46	2.27%		
64		4863	119	0.75	0.47	2.39%		
65		4754	228	0.27	0.53	4.58%		

Table 8a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 7 Form 1 (cont'd)

itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
66		4655	327	0.37	0.50	6.56%		
67		4704	278	0.43	0.61	5.58%		
68	A	4417	565	0.46	0.52	10.18%		
68	B	4416	566	0.67	0.57	10.12%		
69		4807	175	0.65	0.52	3.51%		
70		4761	221	0.41	0.40	4.44%		
71		4713	269	0.50	0.60	5.40%		
72		4648	334	0.57	0.37	6.70%		
73		4672	310	0.55	0.38	6.22%		
74		4641	341	0.40	0.45	6.85%		
75		4601	381	0.40	0.17	7.65%		
76	A	4791	191	0.29	0.56	3.67%		
76	B	4739	243	0.41	0.63	4.56%		
77		4840	142	0.26	0.44	2.85%		
78		4767	215	0.56	0.60	4.32%		
79		4856	126	0.59	0.50	2.53%		
80		4807	175	0.29	0.54	3.51%		
81	A	4660	322	0.56	0.57	5.80%		
81	B	4624	358	0.59	0.69	6.06%		

Table 8b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 7 Form 2

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
3319	0.5208	37.4947	17.1091	71	0	72	0.9556	3.6045
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
3		3274	45	0.52	0.40	1.36%		
9		3028	291	0.69	0.35	8.77%		
13		3300	19	0.65	0.57	0.57%		
15		3302	17	0.91	0.28	0.51%		
24		3297	22	0.60	0.57	0.66%		
32		3247	72	0.55	0.40	2.17%		
33	A	2973	346	0.42	0.43	9.76%		
33	B	2949	370	0.20	0.49	10.49%		
34		3295	24	0.50	0.45	0.72%		
35		3280	39	0.66	0.58	1.18%		
36		3286	33	0.31	0.39	0.99%		
37		3292	27	0.71	0.55	0.81%		
38		3280	39	0.65	0.43	1.18%		
39		3290	29	0.66	0.31	0.87%		
40		3272	47	0.38	0.41	1.42%		
41		3289	30	0.50	0.53	0.90%		
42		3272	47	0.21	0.38	1.42%		
43	A	3135	184	0.53	0.61	5.09%		
43	B	3119	200	0.63	0.66	5.48%		
44		3281	38	0.64	0.56	1.15%		
45		3272	47	0.66	0.47	1.42%		
46		3275	44	0.73	0.42	1.33%		
47		3266	53	0.62	0.53	1.60%		
48		3269	50	0.62	0.48	1.51%		
49		3254	65	0.69	0.54	1.96%		
50		3235	84	0.36	0.36	2.53%		
51		3247	72	0.71	0.44	2.17%		
52		3222	97	0.29	0.38	2.92%		
53	A	3031	288	0.70	0.47	8.29%		
53	B	2979	340	0.44	0.59	9.58%		
54		3024	295	0.66	0.53	8.89%		
55		2977	342	0.13	0.26	10.30%		
56		2925	394	0.44	0.64	11.87%		
57		2900	419	0.66	0.50	12.62%		
58		3301	18	0.54	0.51	0.54%		
59		3290	29	0.78	0.34	0.87%		
60		3303	16	0.74	0.56	0.48%		
61		3304	15	0.75	0.37	0.45%		
62		3300	19	0.61	0.36	0.57%		
63	A	3221	98	0.63	0.42	2.80%		
63	B	3198	121	0.62	0.62	3.28%		
64		3223	96	0.45	0.62	2.89%		
65		3104	215	0.52	0.53	6.48%		

Table 8b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 7 Form 2 (cont'd)

itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
66		3197	122	0.48	0.40	3.68%		
67		3137	182	0.52	0.51	5.48%		
68	A	3089	230	0.45	0.53	6.75%		
68	B	3013	306	0.25	0.55	8.53%		
69		3201	118	0.66	0.50	3.56%		
70		3155	164	0.42	0.42	4.94%		
71		3138	181	0.50	0.62	5.45%		
72		3102	217	0.59	0.38	6.54%		
73		3086	233	0.45	0.32	7.02%		
74		3095	224	0.42	0.48	6.75%		
75		3075	244	0.74	0.38	7.35%		
76	A	3179	140	0.28	0.55	3.95%		
76	B	3148	171	0.41	0.63	4.52%		
77		3220	99	0.24	0.45	2.98%		
78		3252	67	0.29	0.54	2.02%		
79		3212	107	0.33	0.54	3.22%		
80		3122	197	0.33	0.62	5.94%		
81	A	3072	247	0.54	0.59	6.66%		
81	B	3053	266	0.58	0.70	7.02%		

Table 9a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 8 Form 1

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
5097	0.4817	36.1243	16.5328	74	1	75	0.9487	3.7431
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
2		5082	15	0.60	0.37	0.29%		
3		5074	23	0.33	0.40	0.45%		
6		5064	33	0.67	0.41	0.65%		
7		5035	62	0.65	0.42	1.22%		
13		5084	13	0.91	0.22	0.26%		
16		5079	18	0.89	0.35	0.35%		
20		5062	35	0.43	0.41	0.69%		
21		5064	33	0.75	0.33	0.65%		
26		5003	94	0.40	0.26	1.84%		
27		5002	95	0.61	0.51	1.86%		
29		4941	156	0.58	0.31	3.06%		
32	A	4911	186	0.44	0.67	3.38%		
32	B	4864	233	0.62	0.64	4.22%		
33		5066	31	0.55	0.44	0.61%		
34		5066	31	0.24	0.33	0.61%		
35		5072	25	0.73	0.37	0.49%		
36		5063	34	0.51	0.42	0.67%		
37		5058	39	0.50	0.40	0.77%		
38		5076	21	0.52	0.26	0.41%		
39		5063	34	0.70	0.40	0.67%		
40	A	4530	567	0.34	0.56	10.61%		
40	B	4314	783	0.35	0.71	13.60%		
41		5068	29	0.52	0.39	0.57%		
42		5063	34	0.75	0.35	0.67%		
43		5068	29	0.66	0.57	0.57%		
44		5054	43	0.29	0.46	0.84%		
45		5052	45	0.60	0.43	0.88%		
46		5052	45	0.39	0.48	0.88%		
47	A	4696	401	0.36	0.63	7.28%		
47	B	4629	468	0.47	0.74	8.40%		
48		4610	487	0.16	0.51	9.56%		
49		4898	199	0.82	0.41	3.90%		
50		4808	289	0.56	0.41	5.67%		
51		4706	391	0.20	0.37	7.67%		
52		5057	40	0.54	0.36	0.78%		
53		5066	31	0.54	0.40	0.61%		
54		4972	125	0.41	0.29	2.45%		
55		5046	51	0.59	0.36	1.00%		
56		5041	56	0.45	0.40	1.10%		
57	A	4725	372	0.21	0.57	6.81%		
57	B	4659	438	0.29	0.71	7.91%		
58		4883	214	0.29	0.55	4.20%		
59		4867	230	0.53	0.57	4.51%		

Table 9a. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 8 Form 1 (cont'd)

itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
60		4139	958	0.17	0.48	18.80%		
61		4814	283	0.56	0.41	5.55%		
62	A	4536	561	0.60	0.55	10.50%		
62	B	4488	609	0.67	0.56	10.87%		
63		4959	138	0.43	0.30	2.71%		
64		4937	160	0.32	0.31	3.14%		
65		4928	169	0.26	0.40	3.32%		
66		4874	223	0.66	0.40	4.38%		
67		4869	228	0.55	0.47	4.47%		
68		4848	249	0.57	0.37	4.89%		
69		4832	265	0.12	0.22	5.20%		
70	A	4565	532	0.15	0.38	10.34%		
70	B	4652	445	0.20	0.50	7.87%		
71		4955	142	0.39	0.59	2.79%		
72		5019	78	0.67	0.44	1.53%		
73		4995	102	0.43	0.49	2.00%		
74		4888	209	0.44	0.65	4.10%		
75	A	4896	201	0.74	0.40	3.75%		
75	B	4854	243	0.75	0.41	4.40%		
76	A	4576	521	0.29	0.63	9.10%		
76	B	4455	642	0.36	0.67	10.87%		

Table 9b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 8 Form 2

N	Mean_P	Mean_TS	Std_TS	Max_TS	Min_TS	Perf_T	Alpha	SEM
3413	0.4715	35.3592	16.8306	74	1	75	0.9501	3.7592
itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
2		3405	8	0.61	0.41	0.23%		
3		3399	14	0.34	0.43	0.41%		
6		3388	25	0.66	0.41	0.73%		
7		3370	43	0.65	0.41	1.26%		
13		3406	7	0.90	0.18	0.21%		
16		3405	8	0.89	0.34	0.23%		
20		3402	11	0.45	0.40	0.32%		
21		3394	19	0.75	0.31	0.56%		
26		3324	89	0.41	0.23	2.61%		
27		3344	69	0.62	0.49	2.02%		
29		3317	96	0.57	0.31	2.81%		
32	A	3221	192	0.37	0.57	5.19%		
32	B	3143	270	0.28	0.61	6.92%		
33		3398	15	0.55	0.42	0.44%		
34		3380	33	0.24	0.37	0.97%		
35		3405	8	0.74	0.37	0.23%		
36		3402	11	0.57	0.37	0.32%		
37		3402	11	0.52	0.32	0.32%		
38		3396	17	0.71	0.35	0.50%		
39		3394	19	0.50	0.46	0.56%		
40	A	3041	372	0.35	0.55	10.37%		
40	B	2909	504	0.37	0.70	12.86%		
41		3386	27	0.49	0.40	0.79%		
42		3395	18	0.33	0.45	0.53%		
43		3395	18	0.38	0.53	0.53%		
44		3391	22	0.60	0.44	0.64%		
45		3399	14	0.75	0.44	0.41%		
46		3394	19	0.79	0.30	0.56%		
47	A	3033	380	0.25	0.57	10.31%		
47	B	2963	450	0.34	0.70	11.49%		
48		3286	127	0.64	0.42	3.72%		
49		3234	179	0.19	0.56	5.25%		
50		3152	261	0.38	0.66	7.65%		
51		3184	229	0.53	0.61	6.71%		
52		3376	37	0.44	0.31	1.08%		
53		3383	30	0.59	0.38	0.88%		
54		3397	16	0.57	0.41	0.47%		
55		3379	34	0.46	0.40	1.00%		
56		3363	50	0.41	0.36	1.47%		
57	A	3272	141	0.57	0.53	4.10%		
57	B	3238	175	0.43	0.57	4.54%		
58		3139	274	0.27	0.50	8.03%		
59		2784	629	0.19	0.51	18.43%		

Table 9b. Summary of Item Analysis Results for 2006 Calibration Sample, Grade 8 Form 2 (cont'd)

itemno	part	N	N_Miss	P_Val	CORR	Pct_Omit		
60		3144	269	0.52	0.47	7.88%		
61		3225	188	0.59	0.42	5.51%		
62	A	2950	463	0.33	0.62	12.22%		
62	B	2890	523	0.50	0.62	13.62%		
63		3271	142	0.46	0.32	4.16%		
64		3295	118	0.28	0.44	3.46%		
65		3274	139	0.43	0.39	4.07%		
66		3247	166	0.53	0.46	4.86%		
67		3216	197	0.64	0.40	5.77%		
68		3197	216	0.57	0.46	6.33%		
69		3176	237	0.53	0.37	6.94%		
70	A	3163	250	0.27	0.44	7.30%		
70	B	3268	145	0.43	0.40	3.93%		
71		3355	58	0.54	0.42	1.70%		
72		3324	89	0.40	0.62	2.61%		
73		3298	115	0.43	0.56	3.37%		
74		3322	91	0.42	0.51	2.67%		
75	A	3208	205	0.30	0.61	5.30%		
75	B	3136	277	0.52	0.61	7.27%		
76	A	3086	327	0.28	0.61	8.73%		
76	B	2994	419	0.36	0.65	10.67%		

Figure 1. 2006 Grade 3 Common Item Parameter Comparison, Form 1 vs. Form 2

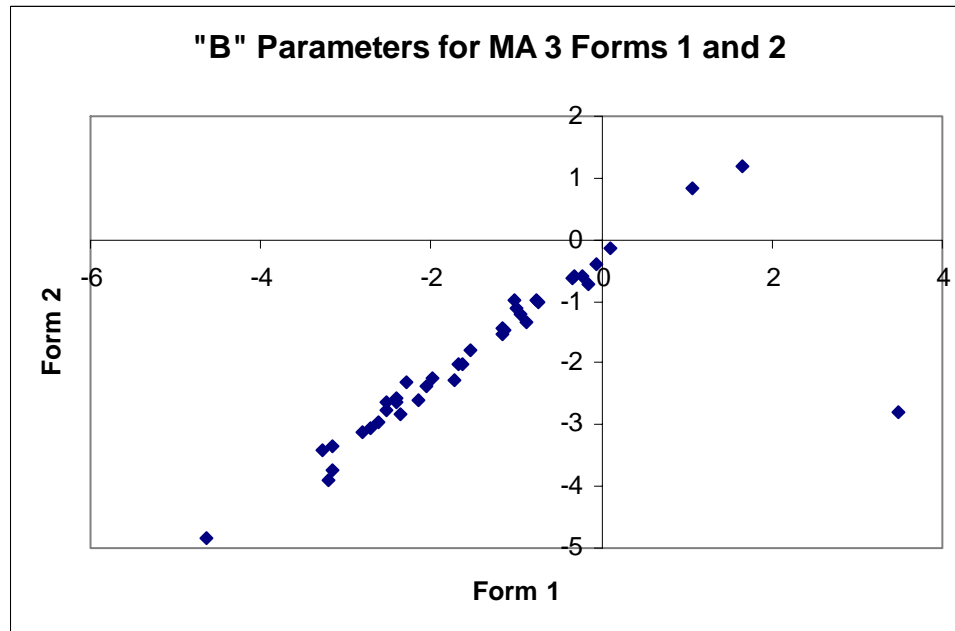
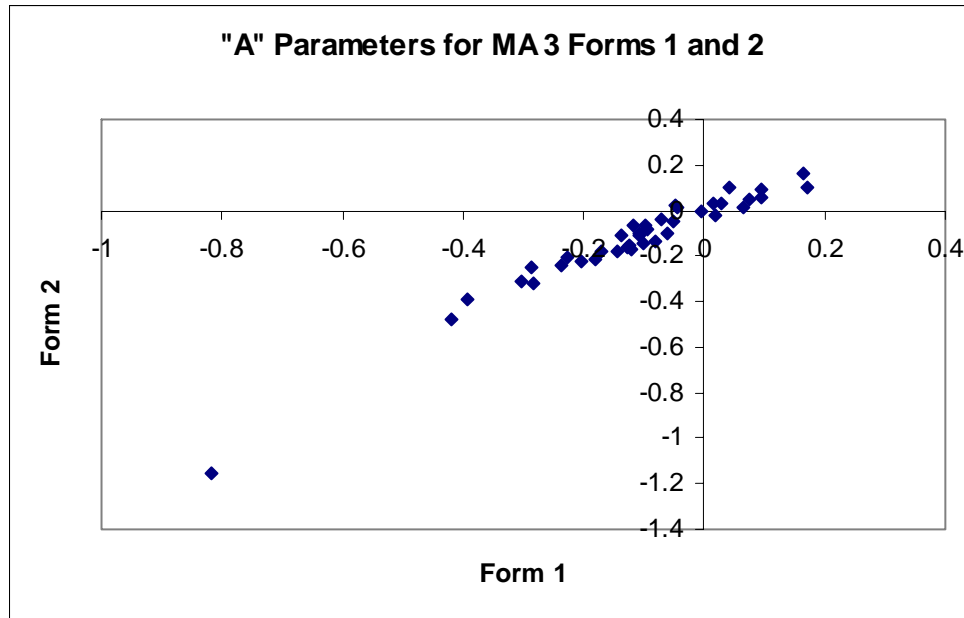


Table 10. Grade 3 Common Item Parameters

MA GRADE 3 Form 1 vs Form 2 common items

FORM 1			FORM 2			FORM 1	FORM 2
item #	a	b	item #	a	b	LOG(a)	LOG(a)
1	0.4979	-2.5239	1	0.4927	-2.6450	-0.3029	-0.3074
2	0.5204	-3.1635	2	0.4748	-3.7406	-0.2837	-0.3235
4	0.6252	-2.4014	4	0.5970	-2.6357	-0.2040	-0.2240
10	0.7637	-2.2861	10	0.8569	-2.3088	-0.1171	-0.0671
12	0.7829	-2.0597	12	0.7962	-2.3645	-0.1063	-0.0990
13	1.0407	-1.5311	13	0.9574	-1.7863	0.0173	-0.0189
14	0.5787	-2.5354	14	0.5746	-2.7785	-0.2375	-0.2406
16	0.7802	-3.1577	16	0.7767	-3.3399	-0.1078	-0.1097
17	0.5927	-2.6192	17	0.6242	-2.9676	-0.2272	-0.2047
18	0.5174	-4.6458	18	0.5576	-4.8498	-0.2862	-0.2537
24	0.9026	-3.2828	24	1.0296	-3.4158	-0.0445	0.0127
32	0.7430	-0.0554	32	0.6908	-0.3911	-0.1290	-0.1606
33	0.1519	3.4748	33	0.0706	-2.7936	-0.8185	-1.1514
34	0.9908	-0.3433	34	0.9965	-0.6138	-0.0040	-0.0015
36	0.8655	-2.1608	36	0.8015	-2.6168	-0.0627	-0.0961
37	0.7960	1.0680	37	0.8560	0.8429	-0.0991	-0.0675
39	1.4605	-1.1661	39	1.4488	-1.5377	0.1645	0.1610
40	0.7293	-2.4035	40	0.7762	-2.5751	-0.1371	-0.1100
41	1.1871	-0.9591	41	1.1235	-1.1930	0.0745	0.0506
42	0.4040	-2.8185	42	0.4111	-3.1170	-0.3937	-0.3860
48	1.0335	-0.3238	71	1.0767	-0.5817	0.0143	0.0321
49	0.7573	-1.1303	49	0.6761	-1.4708	-0.1207	-0.1700
51	1.0999	-0.7656	53	1.2704	-0.9766	0.0414	0.1039
52	1.0708	-1.1708	56	1.0731	-1.4273	0.0297	0.0306
54	0.7903	-1.6374	54	0.7243	-2.0268	-0.1022	-0.1401
55	1.2421	-1.7314	55	1.2358	-2.2765	0.0941	0.0919
57	0.6734	-1.9833	57	0.6549	-2.2574	-0.1718	-0.1839
59	0.8299	-2.7059	59	0.7275	-3.0672	-0.0810	-0.1382
60	0.8059	-1.0101	60	0.8311	-1.1230	-0.0937	-0.0803
61	0.8923	-1.0199	61	1.0552	-0.9974	-0.0495	0.0233
62	1.1587	0.1146	64	1.0349	-0.1304	0.0640	0.0149
63	0.6591	-1.6822	62	0.6158	-2.0204	-0.1811	-0.2105
67	0.3816	-2.3581	67	0.3313	-2.8300	-0.4184	-0.4798
68	0.8458	-0.7504	68	0.9156	-1.0201	-0.0727	-0.0383
69	0.8898	-0.1440	69	0.8894	-0.7325	-0.0507	-0.0509
71	1.2409	-0.8927	73	1.1365	-1.3357	0.0937	0.0556
74	0.7160	1.6638	50	0.6608	1.1946	-0.1451	-0.1799
75	0.7487	-3.2082	75	0.6981	-3.8939	-0.1257	-0.1561
76	1.4773	-0.2164	35	1.2517	-0.6077	0.1695	0.0975

Figure 2. 2006 Grade 4 Common Item Parameter Comparison, Form 1 vs. Form 2

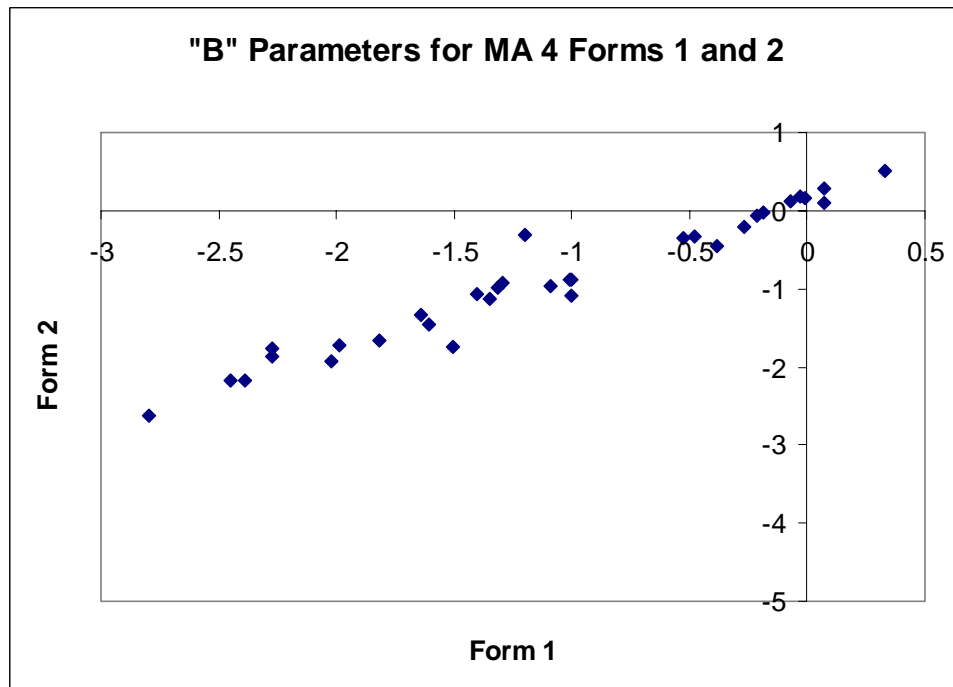
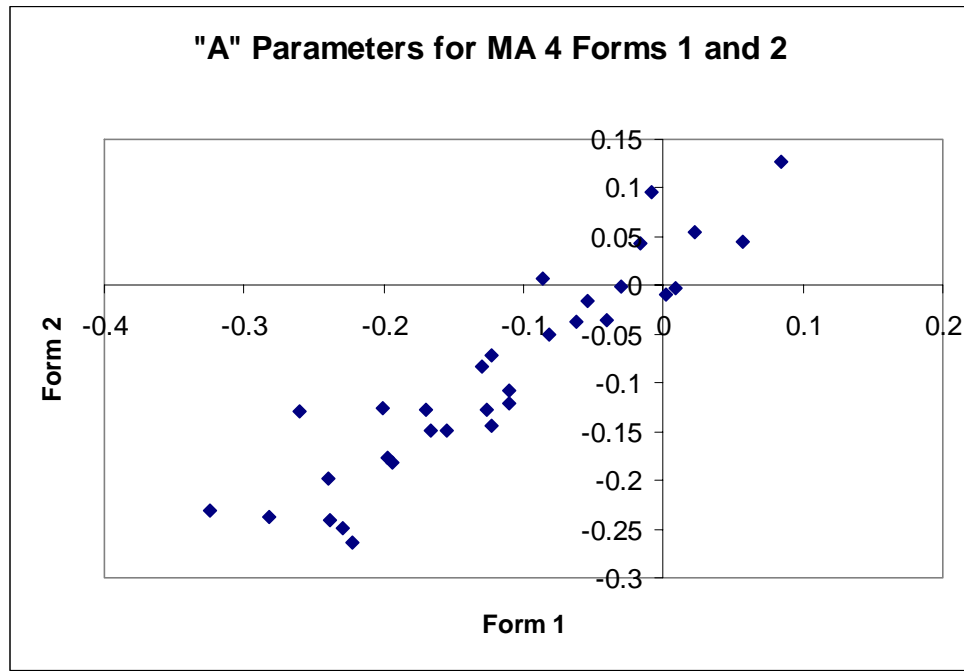


Table 11. Grade 4 Common Item Parameters

MA GRADE 4 Form 1 vs Form 2 common items

FORM 1			FORM 2		
item #	a	b	item #	a	b
1	0.5228	-2.2731	1	0.5778	-1.8699
2	0.4738	-1.3173	2	0.5875	-0.9841
3	0.6402	-2.0198	3	0.6577	-1.9320
4	1.0531	0.0697	4	1.1346	0.0903
10	1.1385	0.3319	10	1.1089	0.5172
17	0.9809	-2.2734	17	1.2471	-1.7702
18	0.7480	-0.2111	18	0.7457	-0.0558
20	0.7748	-1.0064	20	0.7797	-0.8922
27	0.7005	-0.5239	27	0.7100	-0.3475
31	0.9114	-0.0702	31	0.9198	0.1161
35	0.8277	-1.3506	34	0.8916	-1.1268
36	1.2129	-0.4818	37	1.3416	-0.3374
37	0.7541	-1.8176	39	0.7191	-1.6620
40A	0.6297	-1.5034	40A	0.7475	-1.7425
40B	0.7409	-0.3841	40B	0.8244	-0.4492
42	1.0055	-0.1835	41	0.9781	-0.0259
43	1.0217	-0.2652	42	0.9928	-0.2107
45	0.6818	-2.3913	46	0.7091	-2.1825
49	0.5998	-1.6419	50	0.5438	-1.3324
50	0.6353	-2.4511	51	0.6652	-2.1734
53	0.8663	-1.4023	53	0.9182	-1.0758
55	0.5896	-2.7933	54	0.5644	-2.6262
56	0.6760	-0.0076	55	0.7450	0.1585
61	0.5754	-1.1980	61	0.6333	-0.3050
62	0.7540	-1.9894	62	0.8493	-1.7166
66	0.8833	-1.0893	65	0.9632	-0.9588
67	0.9340	-1.2941	67	0.9968	-0.9307
69	0.5780	-1.0010	69	0.5745	-0.8771
72	0.9623	0.0750	72	1.1031	0.2858
73	0.7757	-1.6049	73	0.7556	-1.4549
77	0.5491	-1.0023	77	0.7420	-1.0964
78	0.8191	-0.0294	78	1.0164	0.1874

FORM 1 LOG(a)	FORM 2 LOG(a)
-0.2817	-0.2383
-0.3244	-0.2310
-0.1937	-0.1819
0.0224	0.0548
0.0563	0.0449
-0.0084	0.0959
-0.1261	-0.1275
-0.1108	-0.1081
-0.1546	-0.1487
-0.0403	-0.0363
-0.0821	-0.0499
0.0838	0.1276
-0.1226	-0.1432
-0.2009	-0.1264
-0.1303	-0.0839
0.0024	-0.0096
0.0093	-0.0031
-0.1663	-0.1493
-0.2220	-0.2645
-0.1970	-0.1771
-0.0623	-0.0371
-0.2294	-0.2484
-0.1701	-0.1278
-0.2400	-0.1984
-0.1226	-0.0709
-0.0539	-0.0163
-0.0296	-0.0014
-0.2381	-0.2407
-0.0167	0.0426
-0.1103	-0.1217
-0.2603	-0.1296
-0.0867	0.0071

Figure 3. 2006 Grade 5 Common Item Parameter Comparison, Form 1 vs. Form 2

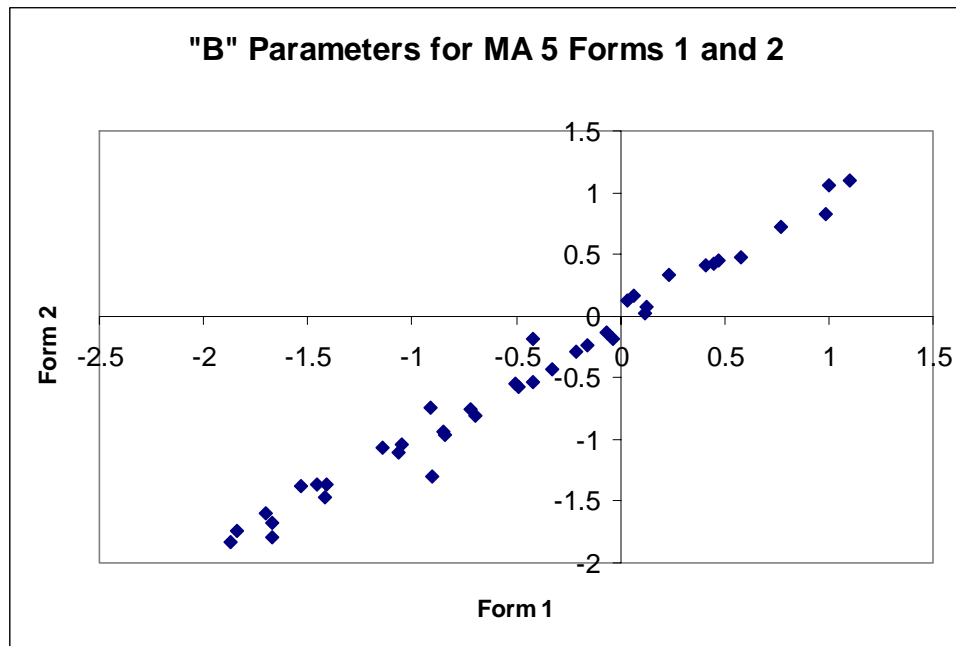
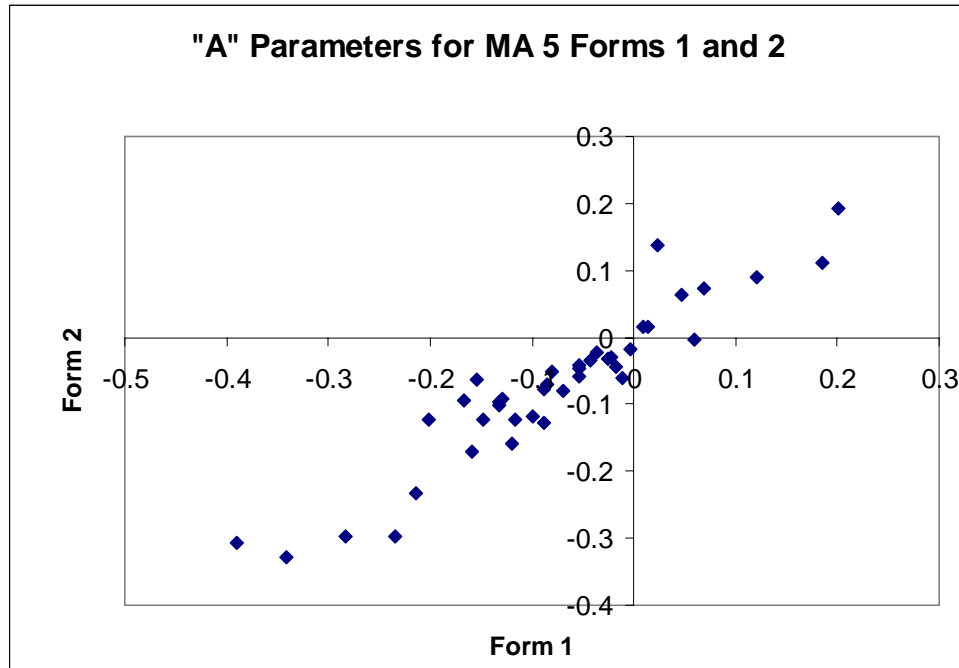


Table 12. Grade 5 Common Item Parameters

MA GRADE 5 Form 1 vs Form 2 common items

FORM 1			FORM 2			FORM 1	FORM 2
item #	a	b	item #	a	b	LOG(a)	LOG(a)
2	0.8221	-1.0606	2	0.8518	-1.1030	-0.0851	-0.0697
4	0.7951	-0.6981	4	0.7631	-0.8107	-0.0996	-0.1174
6	0.7437	-1.4572	6	0.8082	-1.3597	-0.1286	-0.0925
8	0.9203	-0.0635	8	0.9486	-0.1351	-0.0361	-0.0229
12	0.9594	-0.8474	12	0.9044	-0.9418	-0.0180	-0.0436
13	0.4073	-1.8426	13	0.4921	-1.7462	-0.3901	-0.3079
17	0.4556	1.0015	17	0.4697	1.0657	-0.3414	-0.3282
23	1.1156	-0.5009	23	1.1544	-0.5531	0.0475	0.0624
26	0.9448	-0.1558	26	0.9311	-0.2419	-0.0247	-0.0310
27	1.1713	-0.4893	27	1.1857	-0.5779	0.0687	0.0740
28	1.0338	0.0642	28	1.0343	0.1628	0.0144	0.0146
31	1.0220	-0.2152	31	1.0359	-0.2924	0.0095	0.0153
32	0.8829	-1.7036	32	0.8973	-1.5998	-0.0541	-0.0471
36	0.5827	0.2310	37	0.5055	0.3285	-0.2346	-0.2963
37	0.7121	0.5753	36	0.7555	0.4818	-0.1475	-0.1218
39	0.8828	-0.7160	38	0.9063	-0.7558	-0.0541	-0.0427
41	1.1487	-0.0383	41	0.9907	-0.1890	0.0602	-0.0041
42	0.6927	-1.4181	42	0.6746	-1.4661	-0.1595	-0.1710
43	0.8308	1.1030	43	0.8886	1.0972	-0.0805	-0.0513
44	0.8170	0.9855	44	0.8344	0.8258	-0.0878	-0.0786
45	0.7364	-1.6691	45	0.8003	-1.6774	-0.1329	-0.0967
46	0.6804	0.4080	46	0.8034	0.4122	-0.1673	-0.0951
49	0.6105	-1.6717	49	0.5862	-1.7943	-0.2143	-0.2319
50	0.6282	0.4696	50	0.7536	0.4491	-0.2019	-0.1229
54	0.8840	0.4494	55	0.8754	0.4183	-0.0536	-0.0578
55	0.7646	-1.4087	60	0.7550	-1.3606	-0.1166	-0.1220
56	0.8171	-0.4182	59	0.7453	-0.5345	-0.0878	-0.1277
60	0.9922	-0.8422	58	0.9603	-0.9609	-0.0034	-0.0176
61	0.8527	0.0309	61	0.8320	0.1226	-0.0692	-0.0799
62	0.7605	-1.0491	62	0.6944	-1.0468	-0.1189	-0.1584
66	0.9734	-0.9058	66	0.8679	-1.3031	-0.0117	-0.0615
67	1.0570	-0.4160	67	1.3731	-0.1871	0.0241	0.1377
68	0.7376	-1.1427	68	0.7910	-1.0653	-0.1322	-0.1018
69	0.9081	0.1200	69	0.9244	0.0178	-0.0419	-0.0342
70A	1.5904	0.7742	70A	1.5599	0.7221	0.2015	0.1931
70B	1.3217	-0.9109	70B	1.2319	-0.7460	0.1211	0.0906
72	0.9485	-0.3276	72	0.9339	-0.4310	-0.0230	-0.0297
73	0.5212	-1.8738	73	0.5047	-1.8269	-0.2830	-0.2969
74	0.7001	-1.5298	74	0.8668	-1.3744	-0.1548	-0.0621
75	1.5325	0.1265	75	1.2886	0.0773	0.1854	0.1101

Figure 4. 2006 Grade 6 Common Item Parameter Comparison, Form 1 vs. Form 2

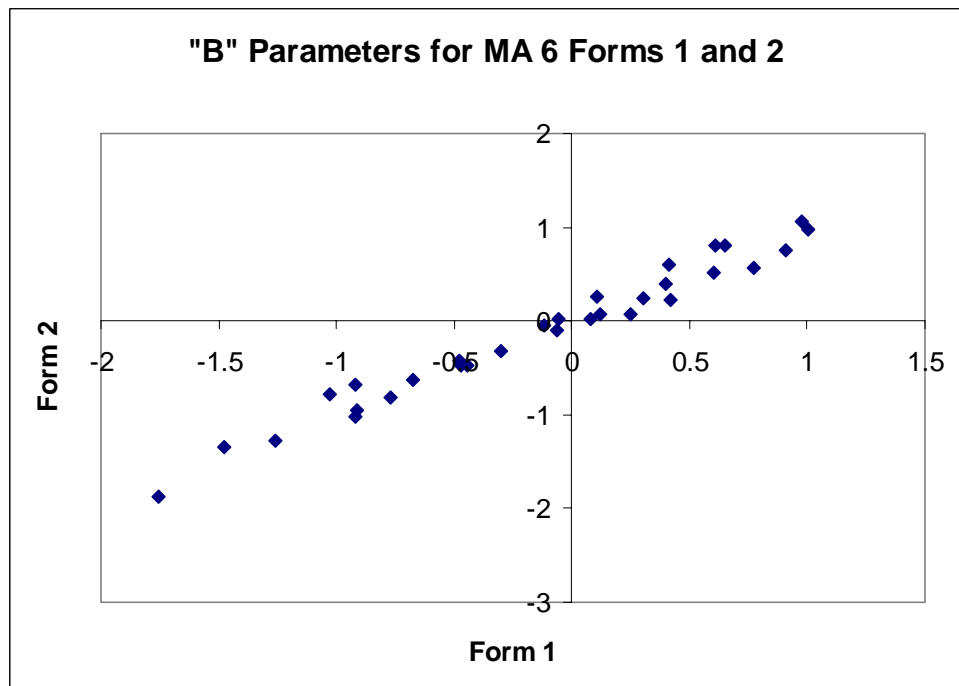
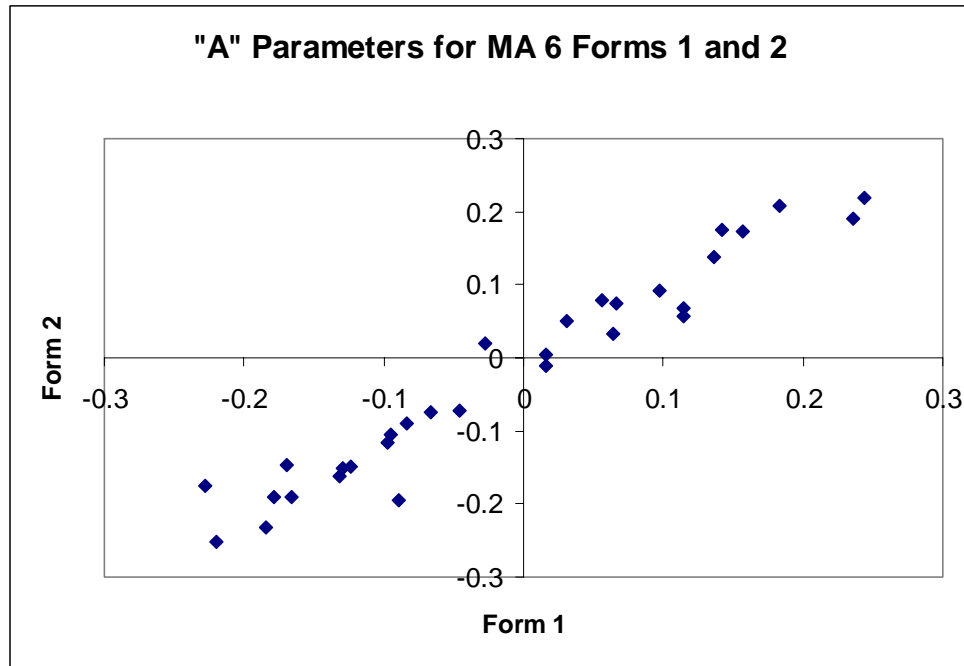


Table 13. Grade 6 Common Item Parameters

MA GRADE 6 Form 1 vs Form 2 common items

FORM 1			FORM 2		
item #	a	b	item #	a	b
6	0.8585	-0.7693	6	0.8409	-0.8126
13	1.1595	-0.9125	13	1.0786	-0.9564
17	0.7983	-0.9210	17	0.7660	-1.0213
18	1.1385	-0.6733	18	1.1965	-0.6338
20	1.3872	-0.4464	20	1.4978	-0.4747
32	1.0734	0.0779	32	1.1242	0.0278
34	0.8034	0.9055	34	0.7850	0.7488
35	1.2523	0.3032	36	1.2340	0.2388
37	1.4349	0.1226	37	1.4858	0.0687
38	1.0380	-0.2984	38	1.0104	-0.3287
41	0.8151	-0.0649	41	0.6400	-0.1012
42	0.7385	-0.0539	42	0.6901	0.0150
46	1.7549	1.0006	43	1.6534	0.9723
47	1.7214	0.6538	47	1.5515	0.8121
52	0.7418	0.6072	55	0.7057	0.8019
53	1.3008	0.9750	53	1.1422	1.0551
54	0.5910	0.4164	54	0.6697	0.2209
58	0.7521	-0.4704	59	0.7093	-0.4769
59	1.5230	0.6006	60	1.6168	0.5229
60	0.9391	0.1053	64	1.0456	0.2562
64	0.6625	-1.2585	61	0.6451	-1.2706
65	1.0378	-1.4762	66	0.9757	-1.3385
66	0.6026	-1.7544	65	0.5613	-1.8693
67	0.9007	-0.1176	67	0.8461	-0.0545
69A	0.8245	0.4108	69A	0.8143	0.5969
69B	1.3006	-1.0288	69B	1.1700	-0.7859
70	0.6822	-0.9203	70	0.6449	-0.6779
71	0.6777	0.2499	71	0.7126	0.0702
74	0.6547	0.7706	76	0.5871	0.5677
76	1.1658	0.3981	74	1.1871	0.3950
79	1.3695	-0.4802	80	1.3767	-0.4235

FORM 1 LOG(a)	FORM 2 LOG(a)
-0.0663	-0.0752
0.0643	0.0329
-0.0979	-0.1158
0.0563	0.0779
0.1421	0.1754
0.0308	0.0508
-0.0951	-0.1051
0.0977	0.0913
0.1568	0.1720
0.0162	0.0045
-0.0888	-0.1938
-0.1317	-0.1611
0.2442	0.2184
0.2359	0.1907
-0.1297	-0.1514
0.1142	0.0577
-0.2284	-0.1741
-0.1237	-0.1492
0.1827	0.2087
-0.0273	0.0194
-0.1788	-0.1904
0.0161	-0.0107
-0.2200	-0.2508
-0.0454	-0.0726
-0.0838	-0.0892
0.1141	0.0682
-0.1661	-0.1905
-0.1690	-0.1472
-0.1840	-0.2313
0.0666	0.0745
0.1365	0.1388

Figure 5. 2006 Grade 7 Common Item Parameter Comparison, Form 1 vs. Form 2

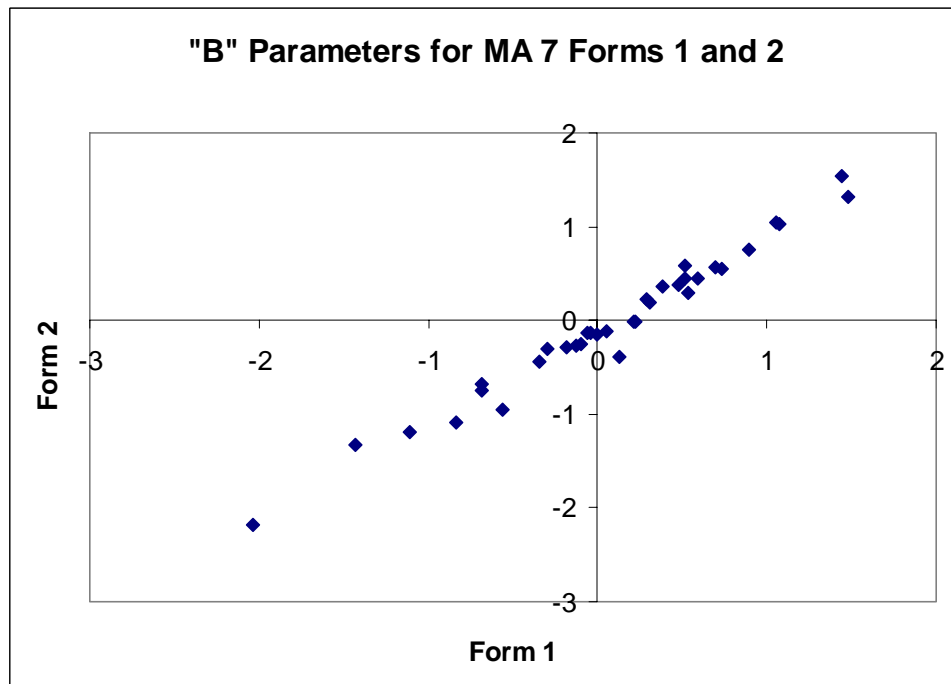
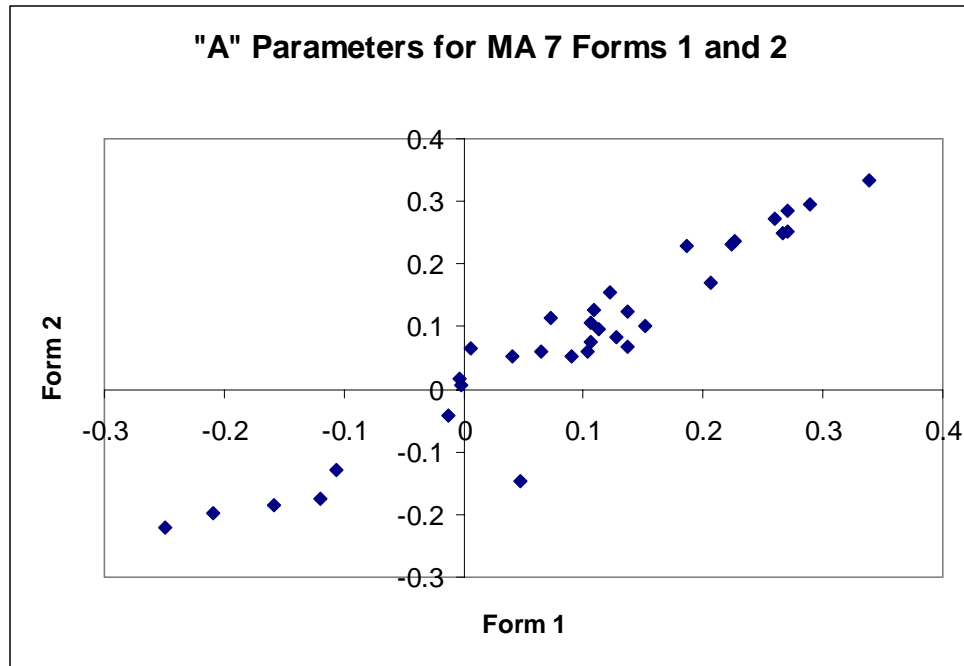


Table 14. Grade 7 Common Item Parameters

MA GRADE 7 Form 1 vs Form 2 common items

FORM 1			FORM 2		
item #	a	b	item #	a	b
3	1.1814	0.5164	3	1.2967	0.5797
9	1.1148	0.1276	9	0.7146	-0.3955
13	1.1608	-0.3424	13	1.1510	-0.4486
15	0.7839	-2.0319	15	0.7421	-2.1784
24	1.2787	-0.0386	24	1.2751	-0.1405
32	1.2687	0.5922	32	1.1456	0.4416
35	0.9957	1.0526	35	1.0130	1.0511
36	1.3692	0.5135	36	1.1705	0.4538
37	1.6066	-0.1862	37	1.4829	-0.2920
39	1.4193	-0.1030	39	1.2623	-0.2608
40	1.2781	-0.6855	40	1.1872	-0.6809
42	0.5639	0.2184	42	0.6001	-0.0206
44	0.9698	-0.0043	44	0.9101	-0.1482
45	1.2960	0.0517	45	1.2474	-0.1162
46	0.9919	-0.0615	46	1.0372	-0.1358
49	1.6842	0.3839	49	1.7189	0.3694
51	1.8642	1.0697	51	1.7889	1.0302
54	1.5370	-0.8331	54	1.6905	-1.0956
56	2.1776	0.4777	56	2.1515	0.3820
58	1.0981	0.3093	58	1.1289	0.1937
59	0.6169	-1.1075	59	0.6355	-1.1896
60	1.2830	-0.6842	60	1.3359	-0.7541
61	0.7592	-0.5592	61	0.6696	-0.9456
67	1.9468	0.5330	67	1.9702	0.2967
69	1.2315	-0.1263	69	1.1312	-0.2708
70	1.3412	0.8906	70	1.2140	0.7569
71	1.6711	0.2921	71	1.7057	0.2177
72	1.8658	0.6992	72	1.9248	0.5650
73	0.6937	0.2120	73	0.6549	-0.0160
74	1.0152	0.7365	74	1.1596	0.5553
77	1.3251	1.4451	77	1.4258	1.5309
80	1.8488	1.4815	80	1.7708	1.3186
81A	1.8210	-0.2961	81A	1.8739	-0.3091
81B	1.3701	-1.4273	81B	1.3288	-1.3283

FORM 1 LOG(a)	FORM 2 LOG(a)
0.0724	0.1128
0.0472	-0.1459
0.0647	0.0611
-0.1058	-0.1295
0.1068	0.1055
0.1034	0.0590
-0.0019	0.0056
0.1365	0.0684
0.2059	0.1711
0.1521	0.1012
0.1066	0.0745
-0.2488	-0.2218
-0.0133	-0.0409
0.1126	0.0960
-0.0035	0.0159
0.2264	0.2352
0.2705	0.2526
0.1867	0.2280
0.3380	0.3327
0.0406	0.0527
-0.2098	-0.1969
0.1082	0.1258
-0.1197	-0.1742
0.2893	0.2945
0.0904	0.0535
0.1275	0.0842
0.2230	0.2319
0.2709	0.2844
-0.1588	-0.1839
0.0066	0.0643
0.1222	0.1541
0.2669	0.2482
0.2603	0.2727
0.1368	0.1234

Figure 6. 2006 Grade 8 Common Item Parameter Comparison, Form 1 vs. Form 2

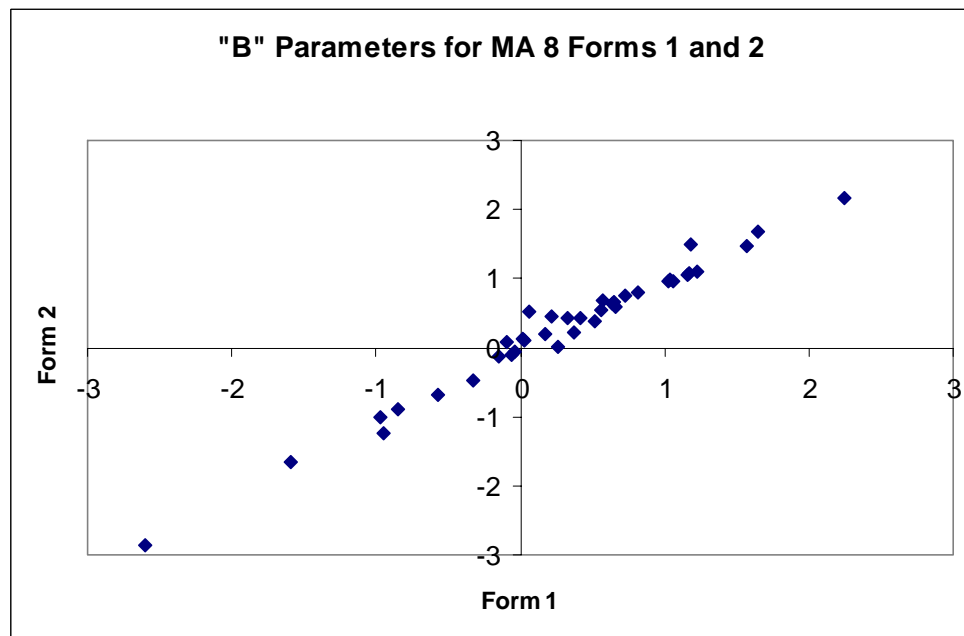
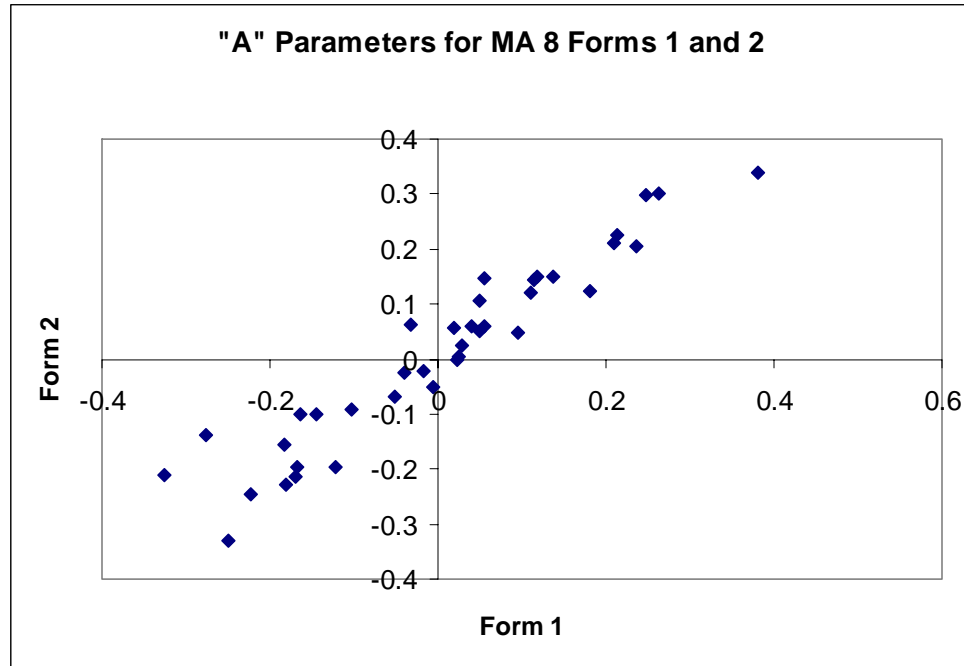


Table 15. Grade 8 Common Item Parameters

MA GRADE 8 Form 1 vs Form 2 common items

FORM 1			FORM 2			FORM 1	FORM 2
item #	a	b	item #	a	b	LOG(a)	LOG(a)
2	1.3699	0.5211	2	1.4081	0.3908	0.1367	0.1486
3	1.0574	1.0611	3	1.0110	0.9657	0.0242	0.0047
6	1.1221	0.0303	6	1.1211	0.1017	0.0500	0.0496
7	0.9867	-0.0380	7	0.8904	-0.0675	-0.0058	-0.0504
13	0.5618	-2.6031	13	0.4662	-2.8540	-0.2504	-0.3315
16	1.0538	-1.5950	16	0.9935	-1.6469	0.0228	-0.0028
20	0.9105	0.7248	20	0.9463	0.7525	-0.0407	-0.0240
21	0.5980	-0.9694	21	0.5686	-1.0158	-0.2233	-0.2452
26	0.4729	1.1817	26	0.6167	1.4934	-0.3252	-0.2099
27	1.0941	-0.1490	27	1.1478	-0.1192	0.0391	0.0599
29	0.5294	0.0643	29	0.7291	0.5312	-0.2762	-0.1372
33	1.2448	0.4161	33	1.1134	0.4385	0.0951	0.0466
34	0.6843	1.5722	34	0.7918	1.4617	-0.1647	-0.1014
35	0.6576	-0.8537	35	0.6999	-0.8941	-0.1820	-0.1550
36	1.6203	0.6546	39	1.6209	0.5870	0.2096	0.2098
37	0.9269	0.5704	41	1.1535	0.6932	-0.0330	0.0620
38	1.8317	1.1660	37	2.0000	1.0876	0.2628	0.3010
39	0.7561	-0.5765	38	0.6358	-0.6759	-0.1214	-0.1967
41	0.6777	0.2554	36	0.6108	0.0091	-0.1690	-0.2141
42	0.6586	-0.9524	46	0.5921	-1.2441	-0.1814	-0.2276
44	1.0465	1.0280	42	1.1387	0.9638	0.0198	0.0564
45	1.0680	0.1757	44	1.0582	0.1877	0.0286	0.0246
46	1.1213	0.6515	43	1.2788	0.6526	0.0497	0.1068
53	0.8867	0.3677	54	0.8547	0.2177	-0.0522	-0.0682
54	1.1357	1.1579	56	1.4000	1.0445	0.0553	0.1461
55	1.3019	0.5637	53	1.3963	0.5438	0.1146	0.1450
56	1.5173	0.8188	55	1.3252	0.8100	0.1811	0.1223
60	1.6379	2.2465	59	1.6751	2.1726	0.2143	0.2240
61	1.1343	-0.3285	61	1.1483	-0.4727	0.0547	0.0601
63	0.6796	1.0367	52	0.6379	0.9735	-0.1677	-0.1953
65	1.2875	1.2229	64	1.3187	1.0988	0.1097	0.1201
66	0.9621	0.0119	67	0.9495	0.1166	-0.0168	-0.0225
67	0.7886	-0.0916	66	0.8098	0.0897	-0.1031	-0.0916
68	0.7170	0.2195	69	0.7954	0.4453	-0.1445	-0.0994
71	1.7700	0.6359	72	1.9904	0.6428	0.2480	0.2989
73	1.3134	0.3217	74	1.4121	0.4251	0.1184	0.1499
76A	2.4018	1.6429	76A	2.1821	1.6744	0.3805	0.3389
76B	1.7248	-0.0577	76B	1.6030	-0.0935	0.2367	0.2049

Table 16. Correlations of Estimated and Anchor Parameters, MSA Mathematics Year-to-Year Equating

Grade	Correlation of A parameters	Correlation of B parameters
3	.91	.99
4	.93	.98
5	.85	.98
6	.96	.99
7	.97	.99
8	.92	.98

Figure 7. Estimated and Anchor A Parameter Values, 2006 MSA Grade 3 Mathematics

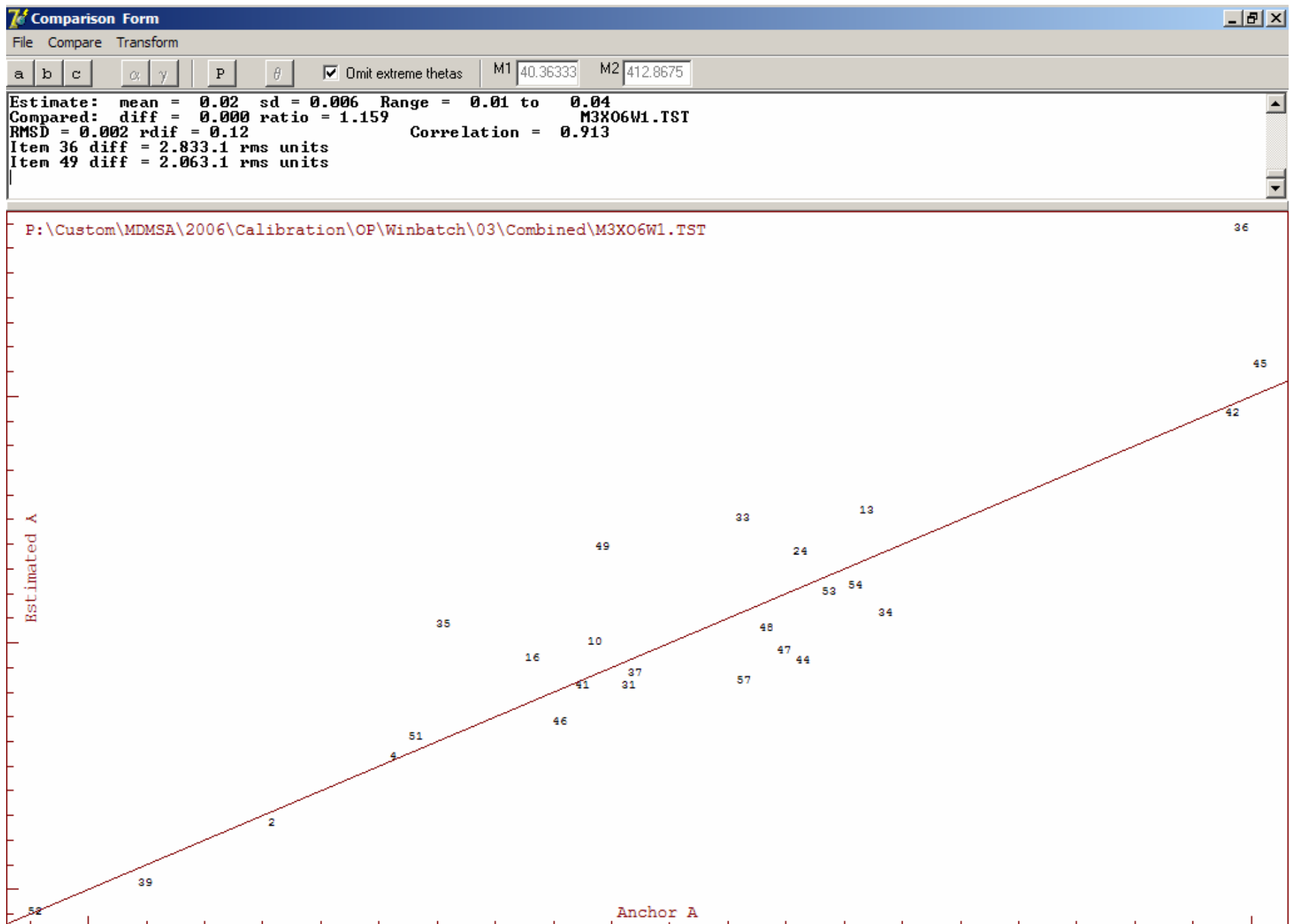


Figure 8. Estimated and Anchor B Parameter Values, 2006 MSA Grade 3 Mathematics

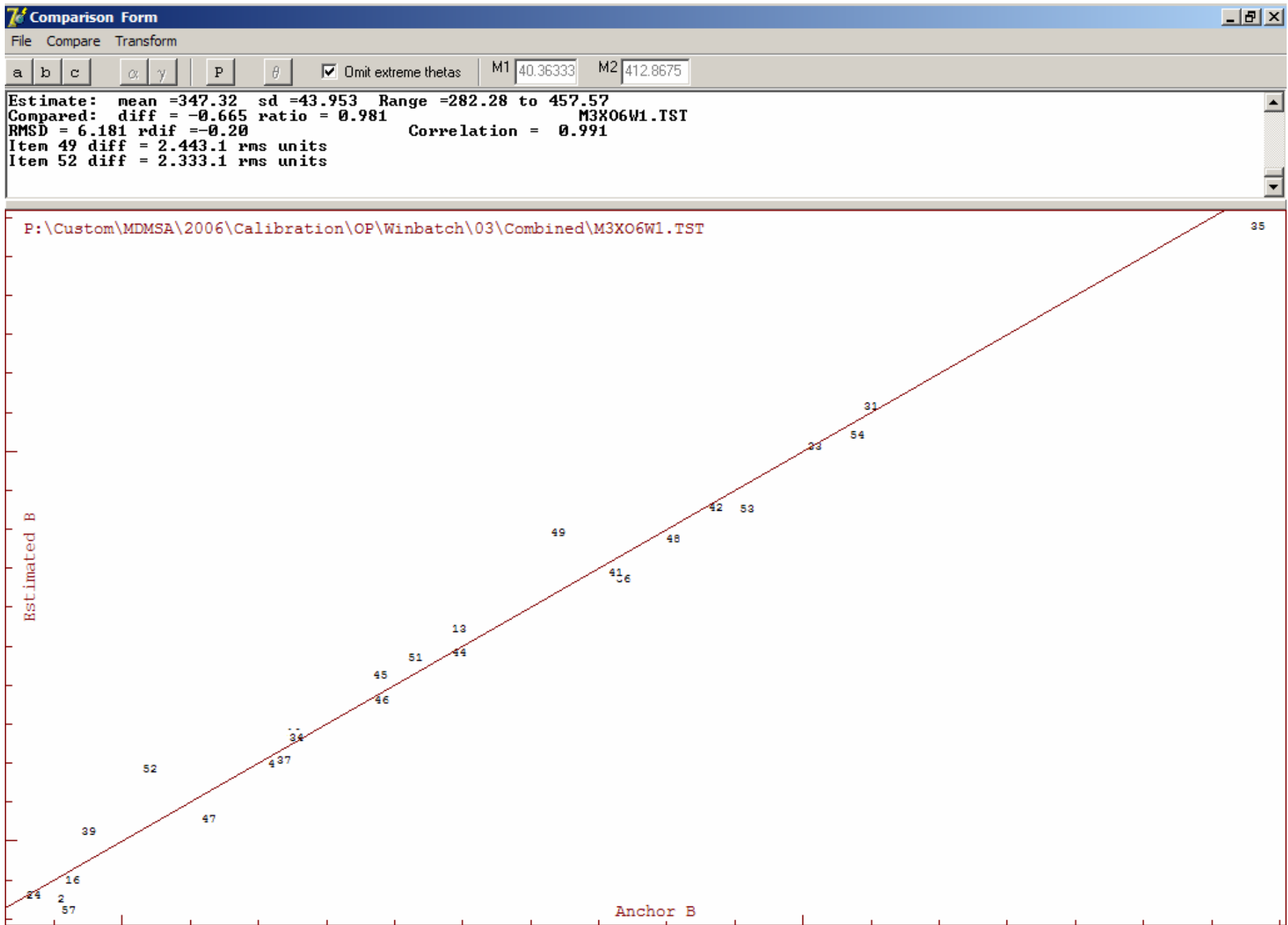


Figure 9. Estimated and Actual P Values, 2006 MSA Grade 3 Mathematics

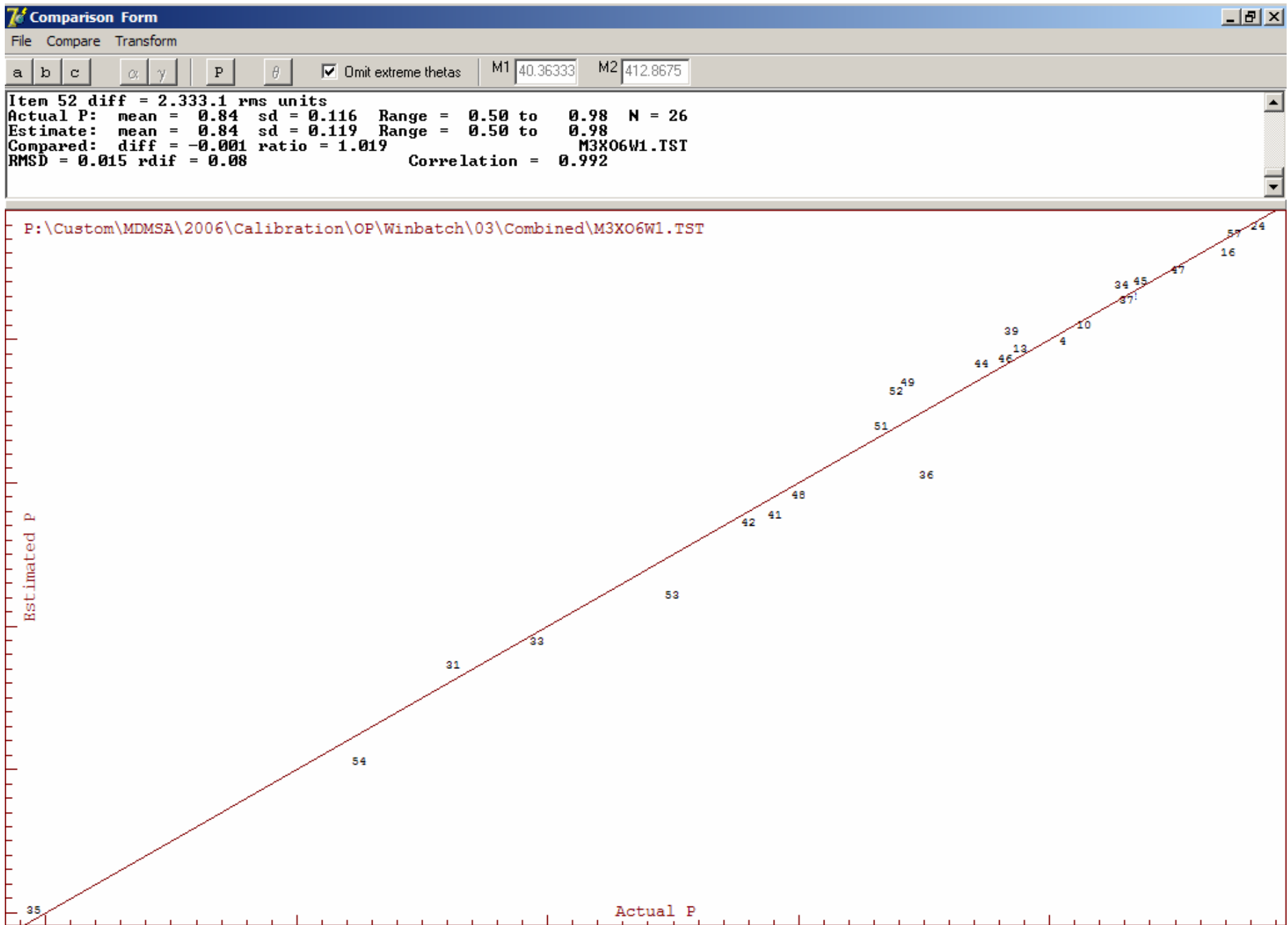


Figure 10. Stocking & Lord Test Characteristic Curves, 2006 MSA Grade 3 Mathematics

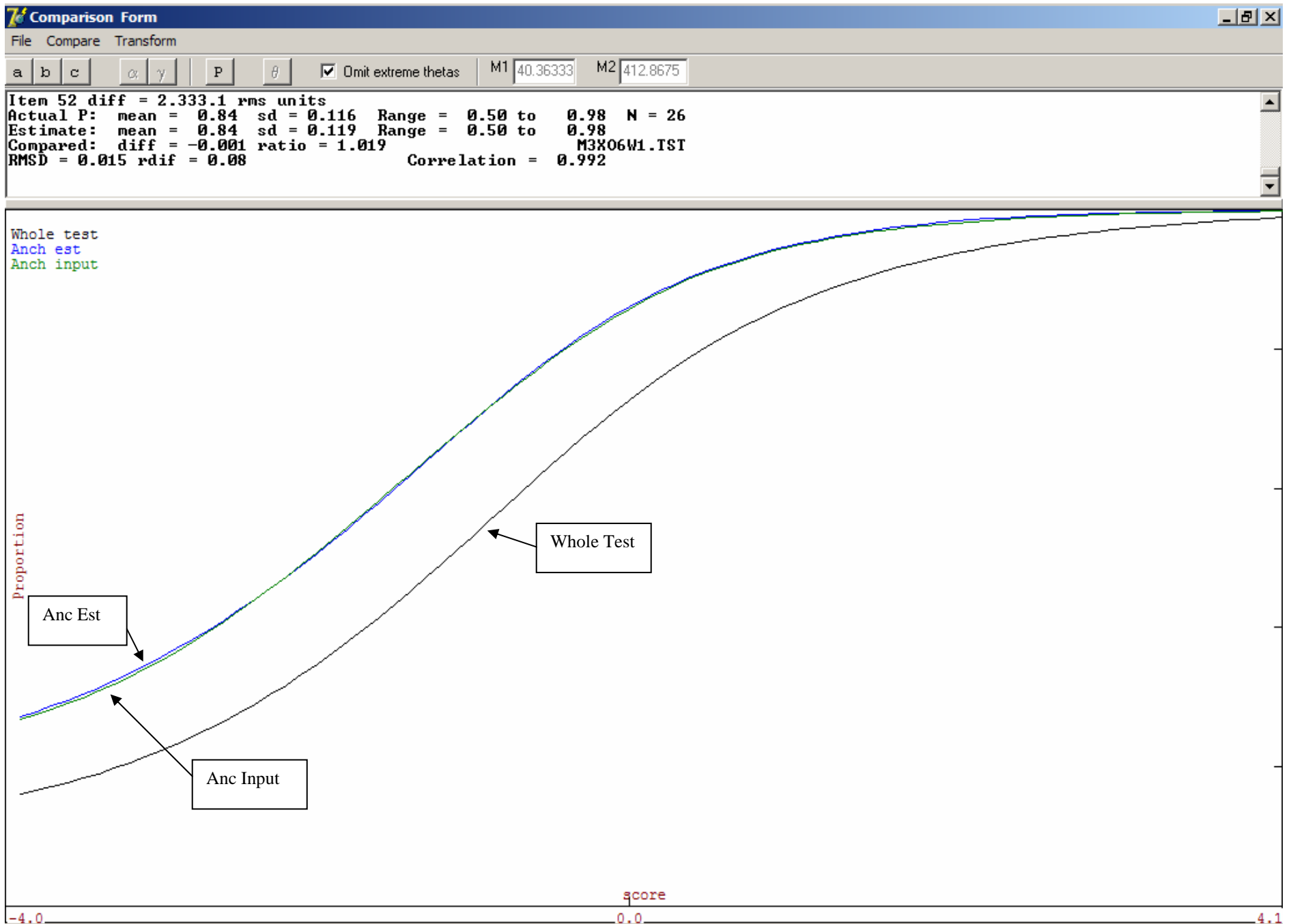


Figure 11. Estimated and Anchor A Parameter Values, 2006 MSA Grade 4 Mathematics 4

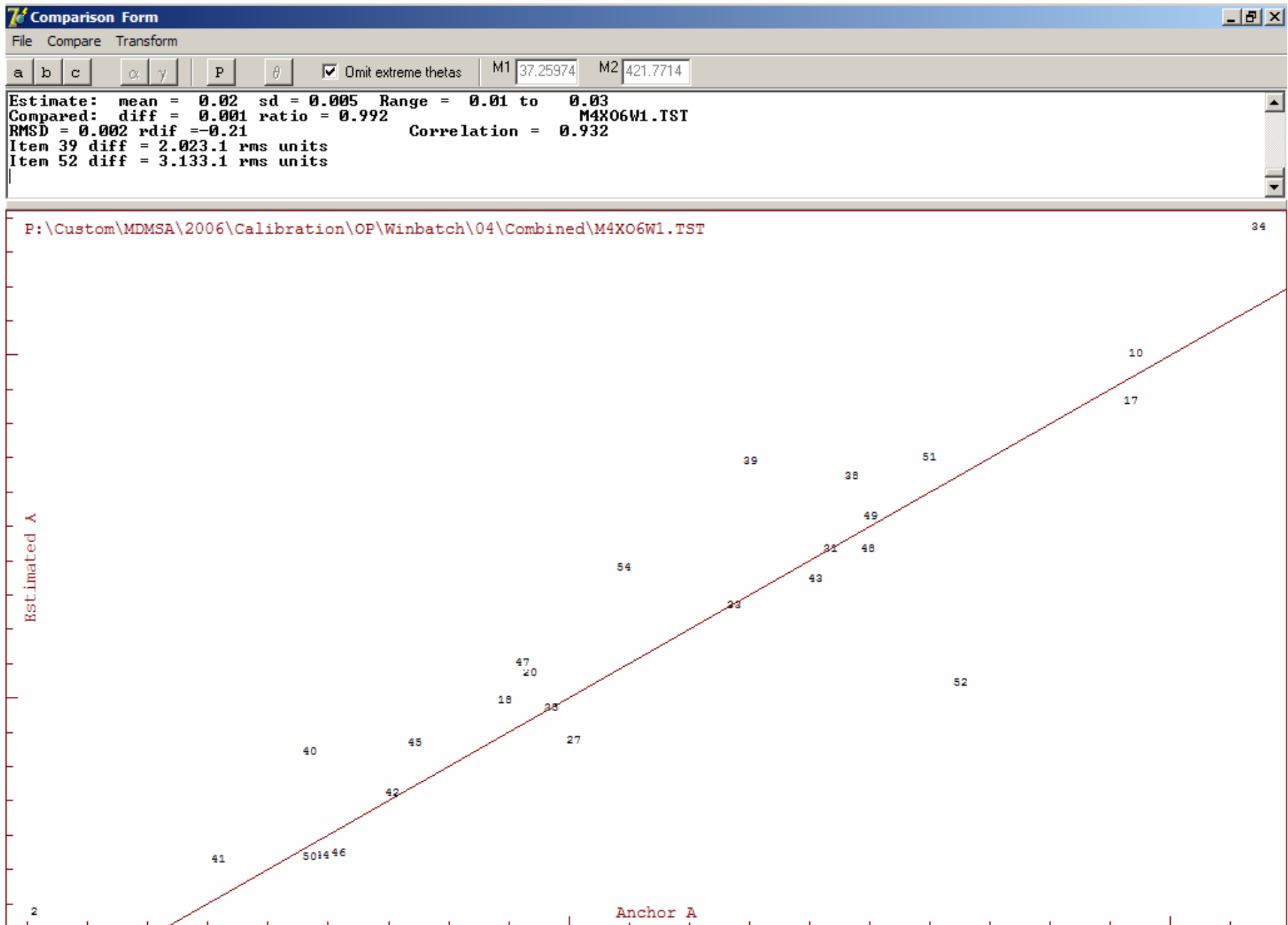


Figure 12. Estimated and Anchor B Parameter Values, 2006 MSA Grade 4 Mathematics

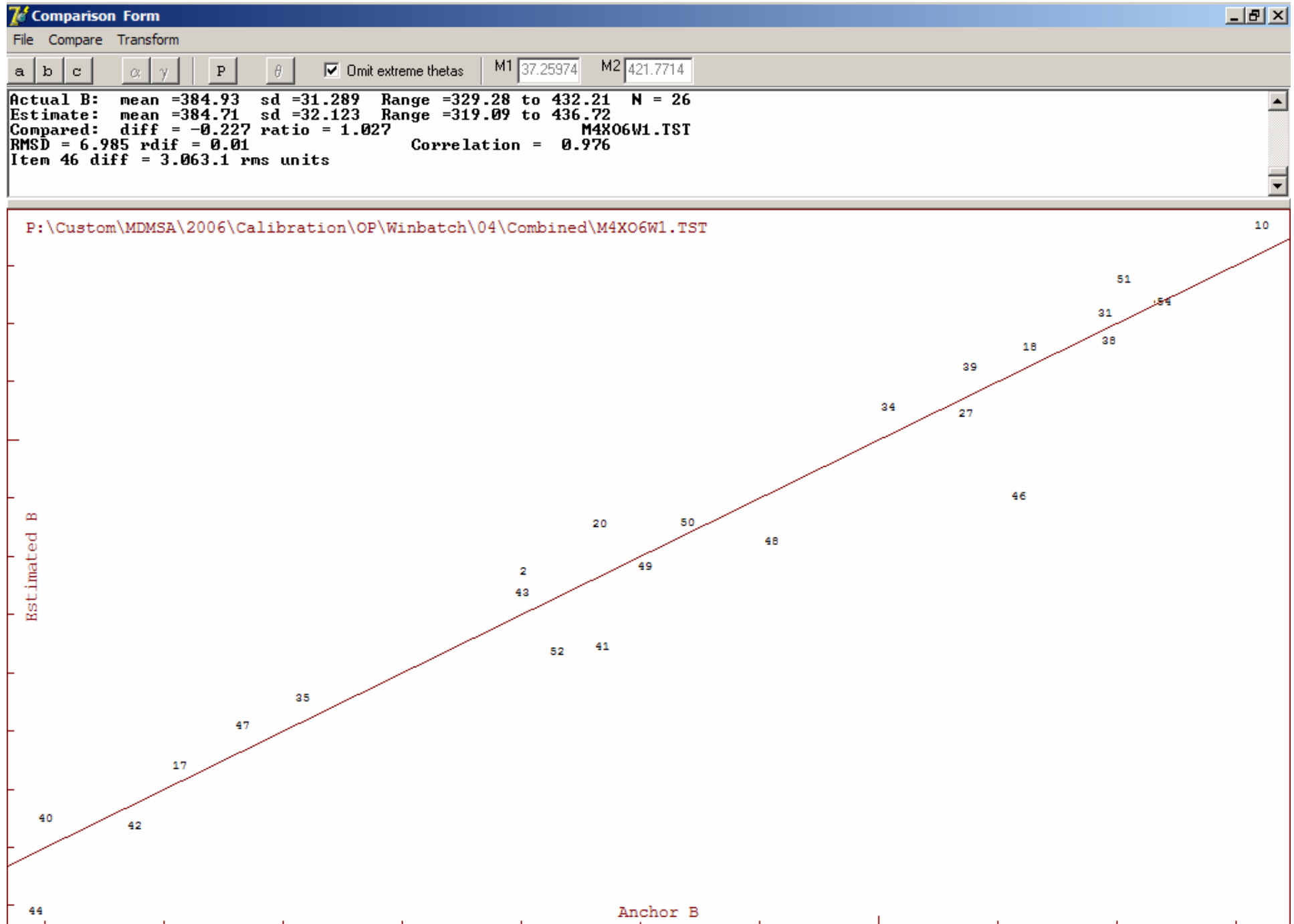


Figure 13. Estimated and Actual P Values, 2006 MSA Grade 4 Mathematics

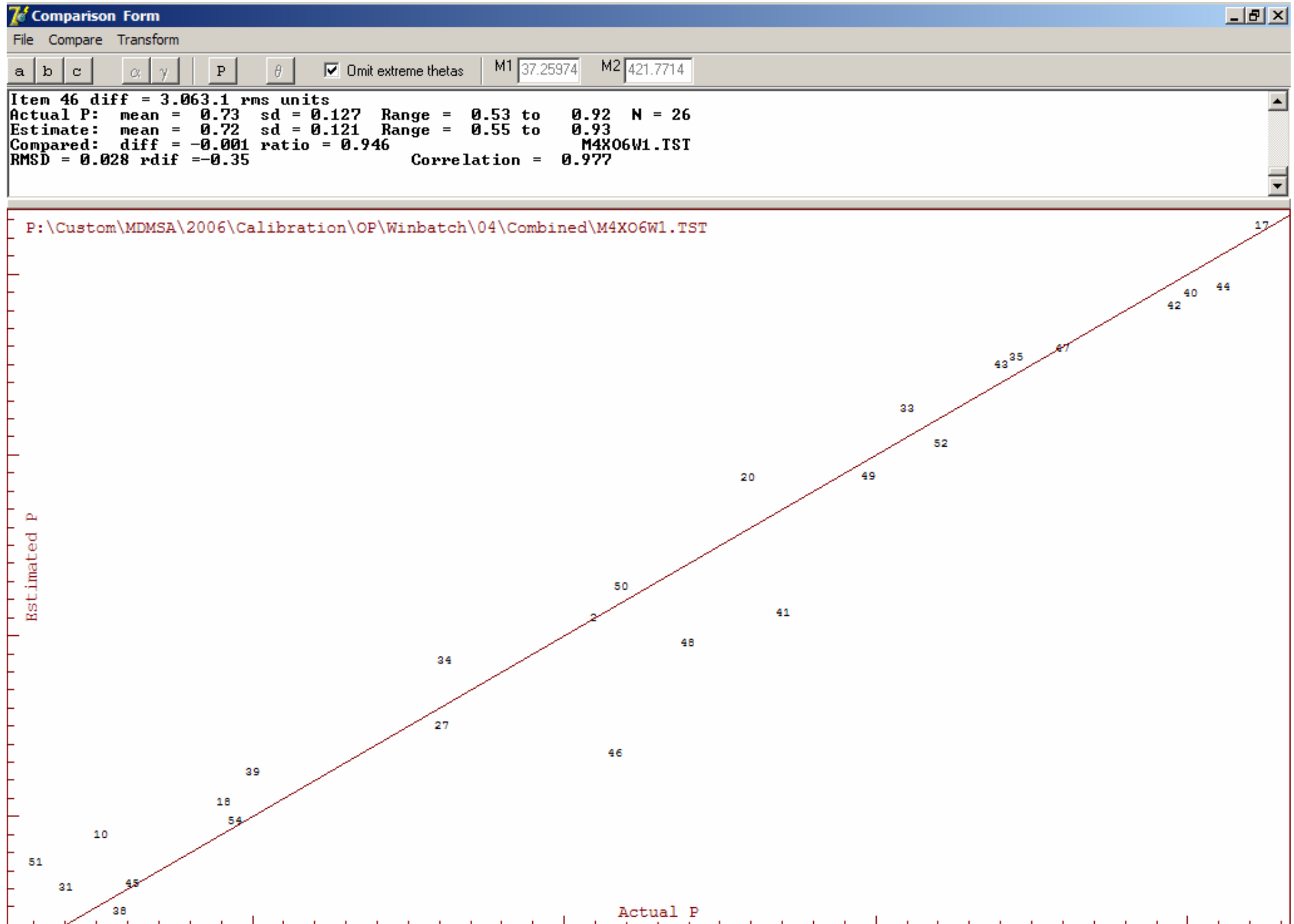


Figure 14. Stocking & Lord Test Characteristic Curves, 2006 MSA Grade 4 Mathematics

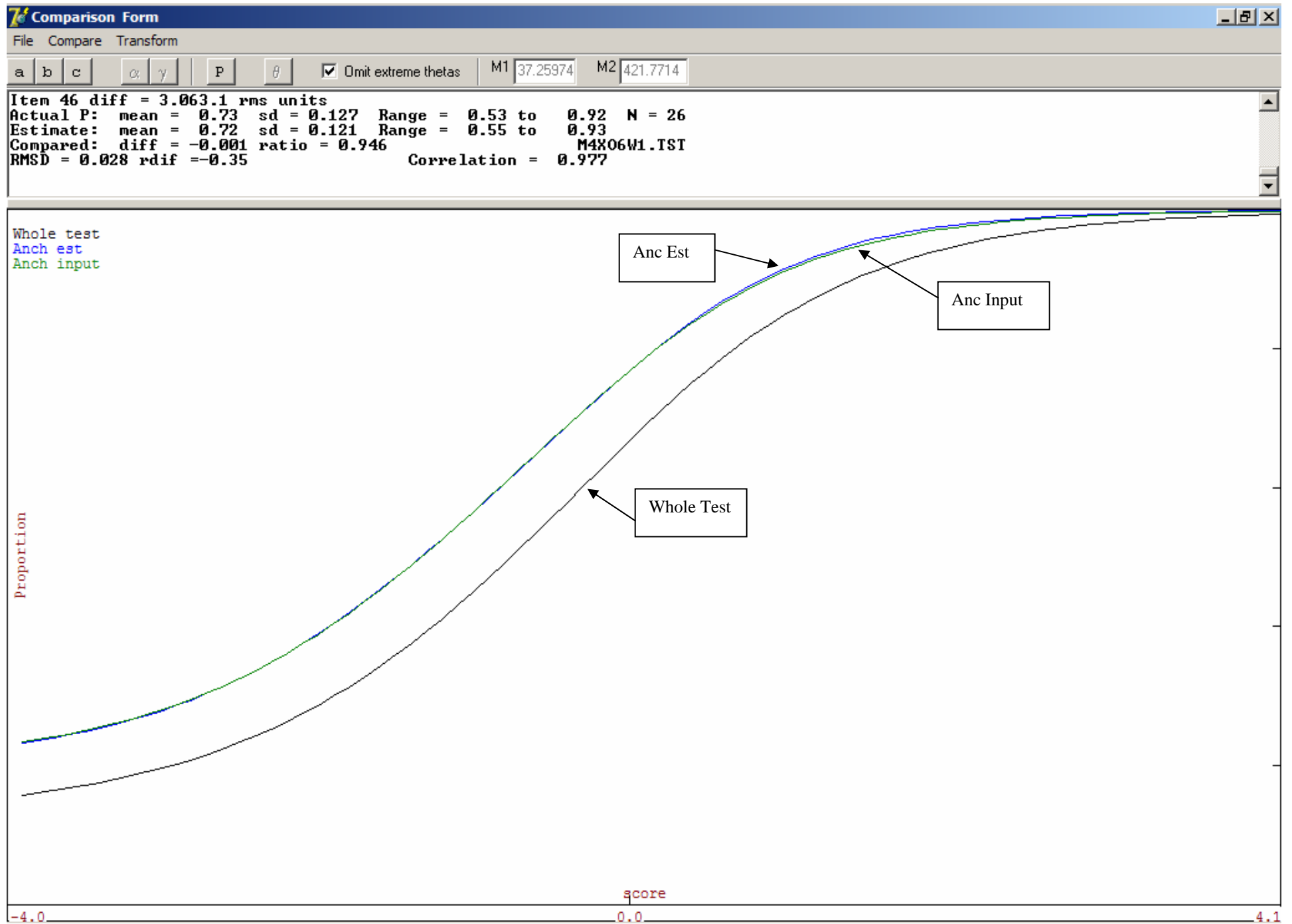


Figure 15. Estimated and Anchor A Parameter Values, 2006 MSA Grade 5 Mathematics

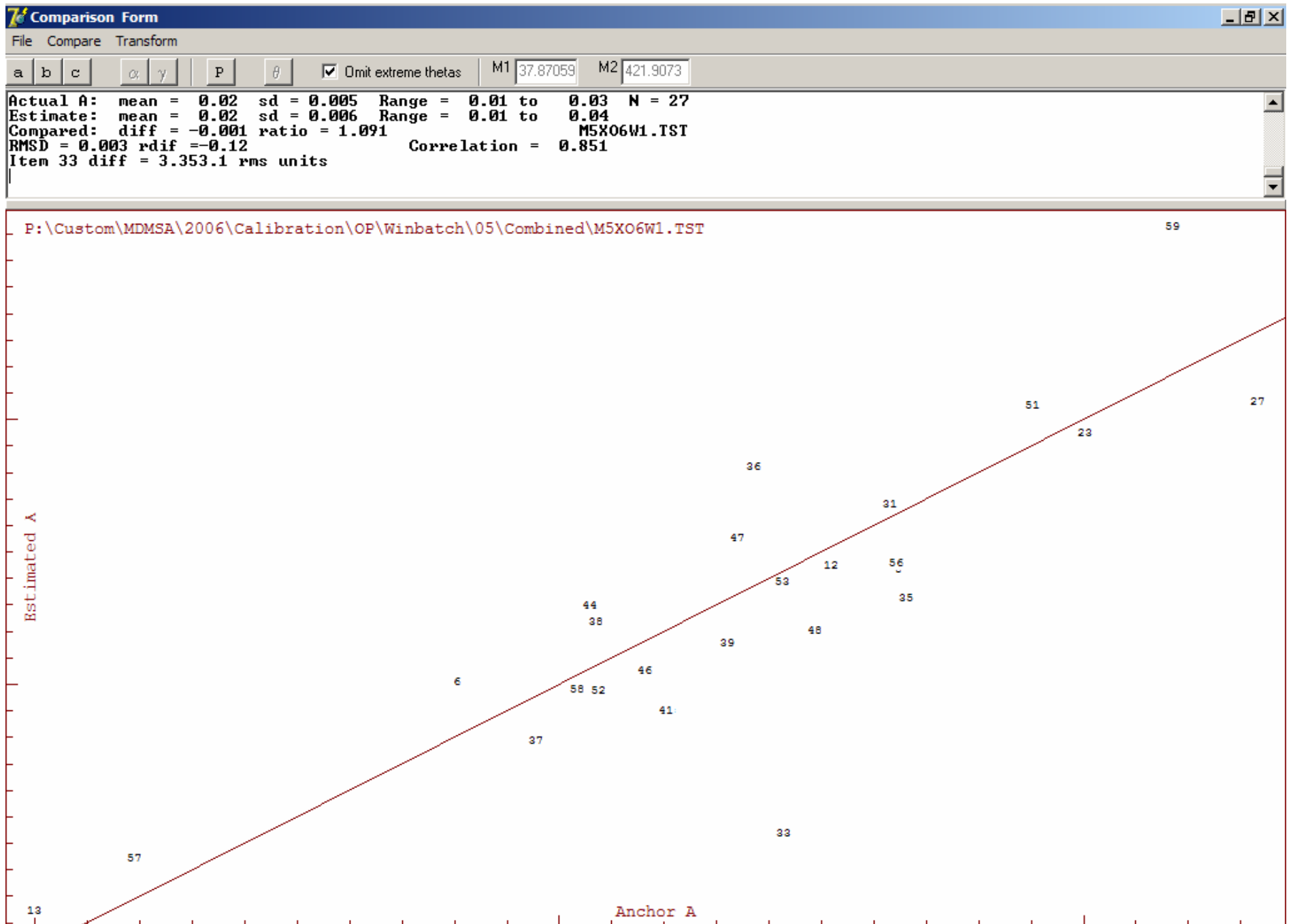


Figure 16. Estimated and Anchor B Parameter Values, 2006 MSA Grade 5 Mathematics

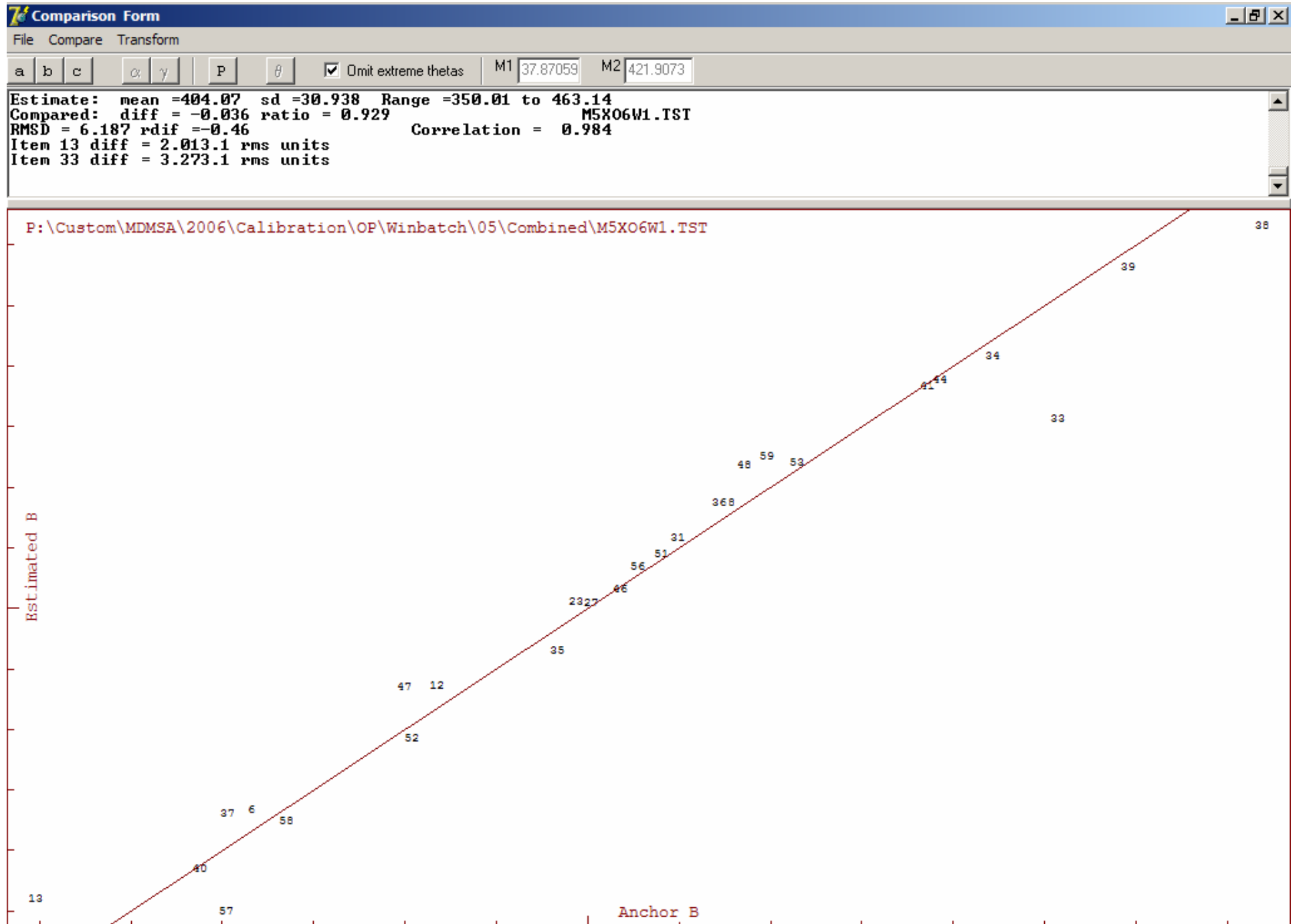


Figure 17. Estimated and Actual P Values, 2006 MSA Grade 5 Mathematics

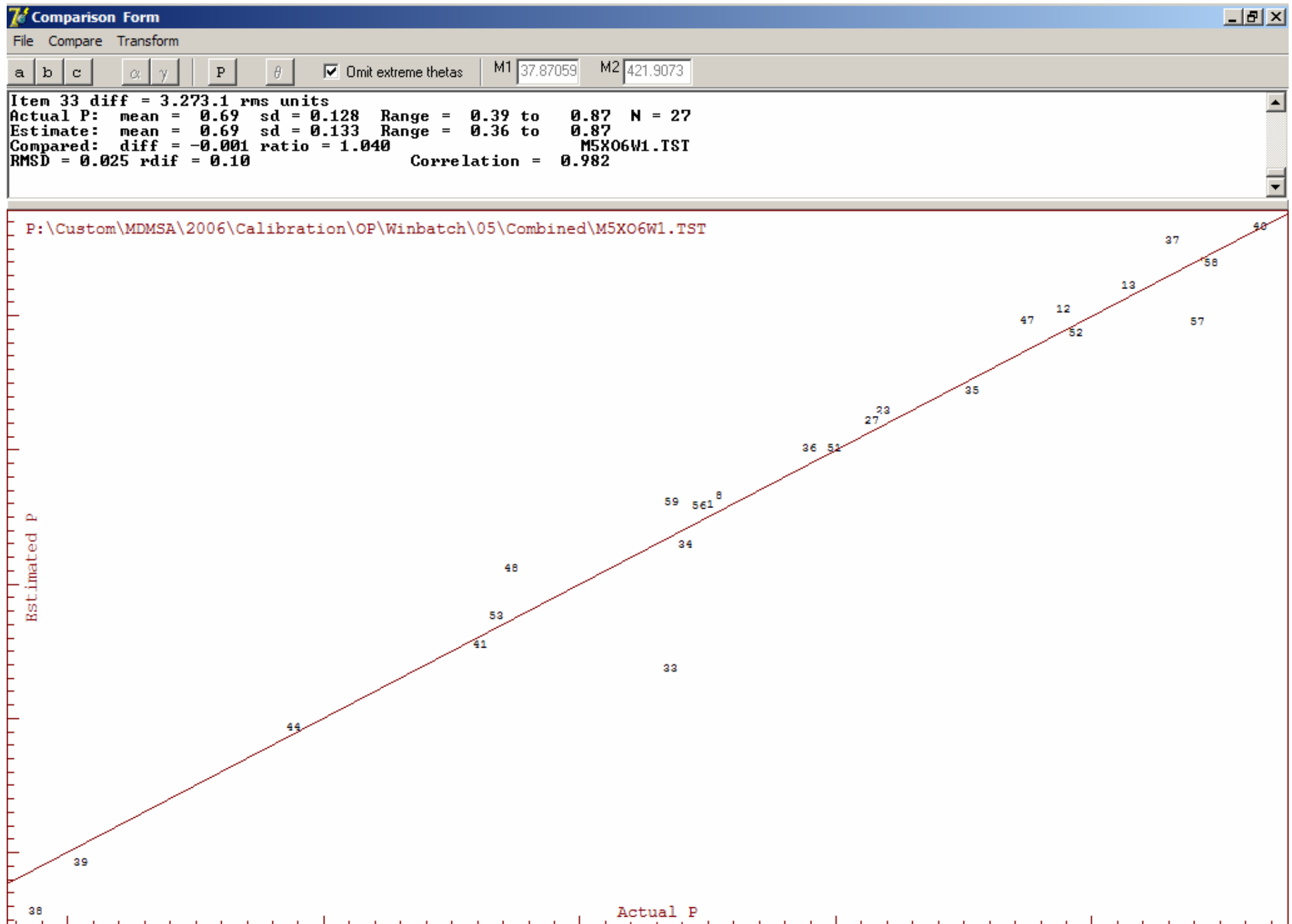


Figure 18. Stocking & Lord Test Characteristic Curves, 2006 MSA Grade 5 Mathematics

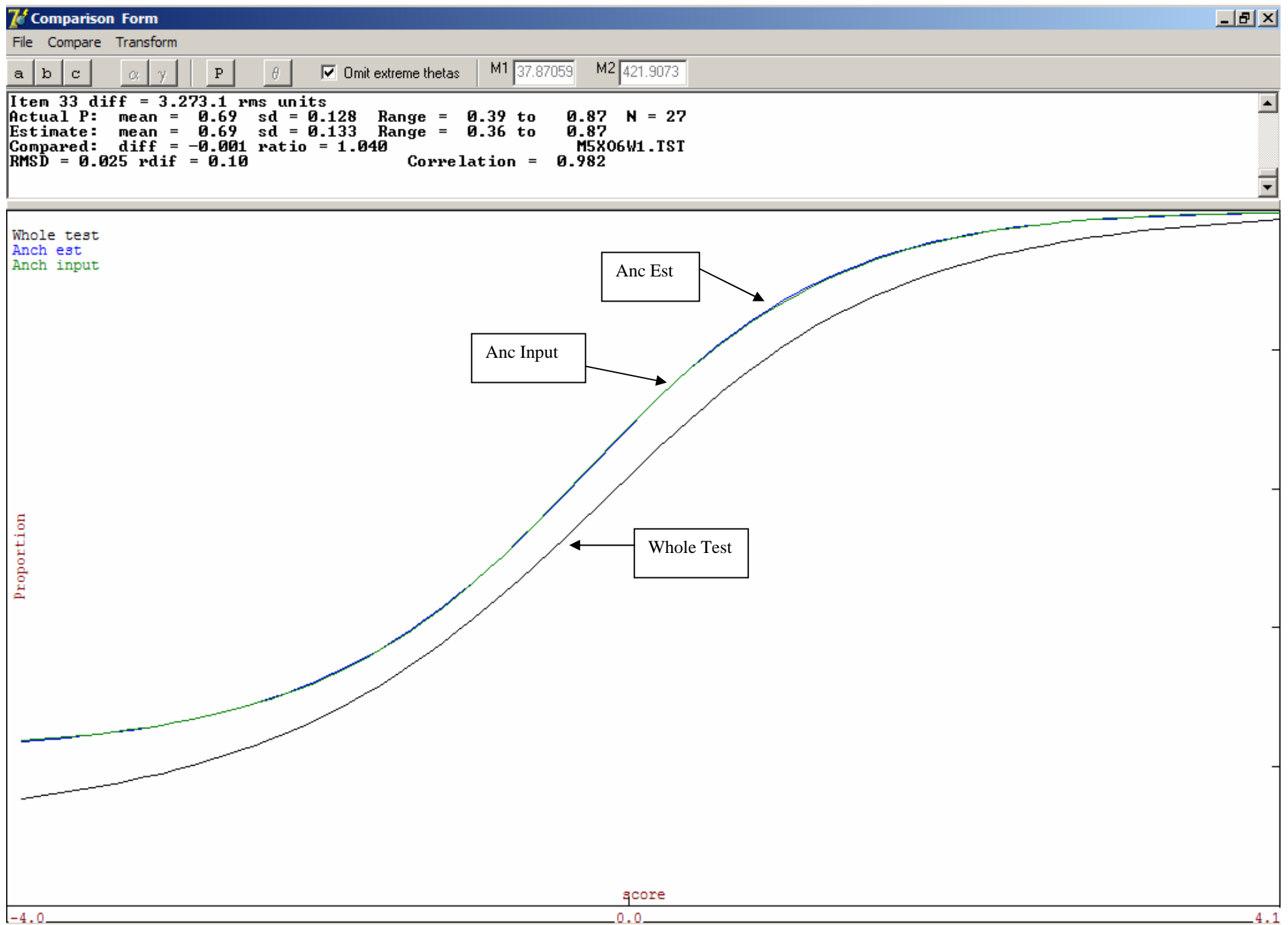


Figure 19. Estimated and Anchor A Parameter Values, 2006 MSA Grade 6 Mathematics

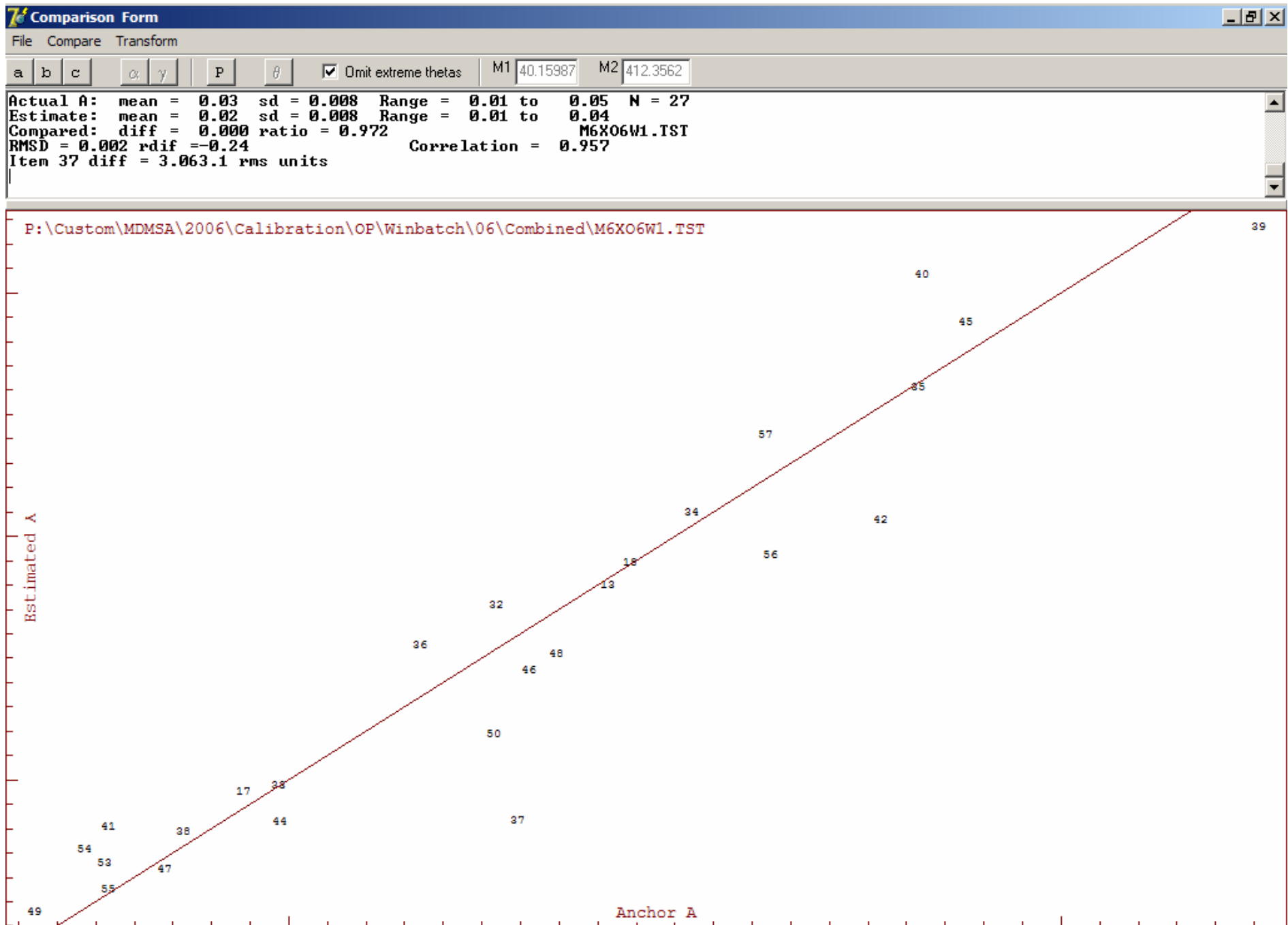


Figure 20. Estimated and Anchor B Parameter Values, 2006 MSA Grade 6 Mathematics

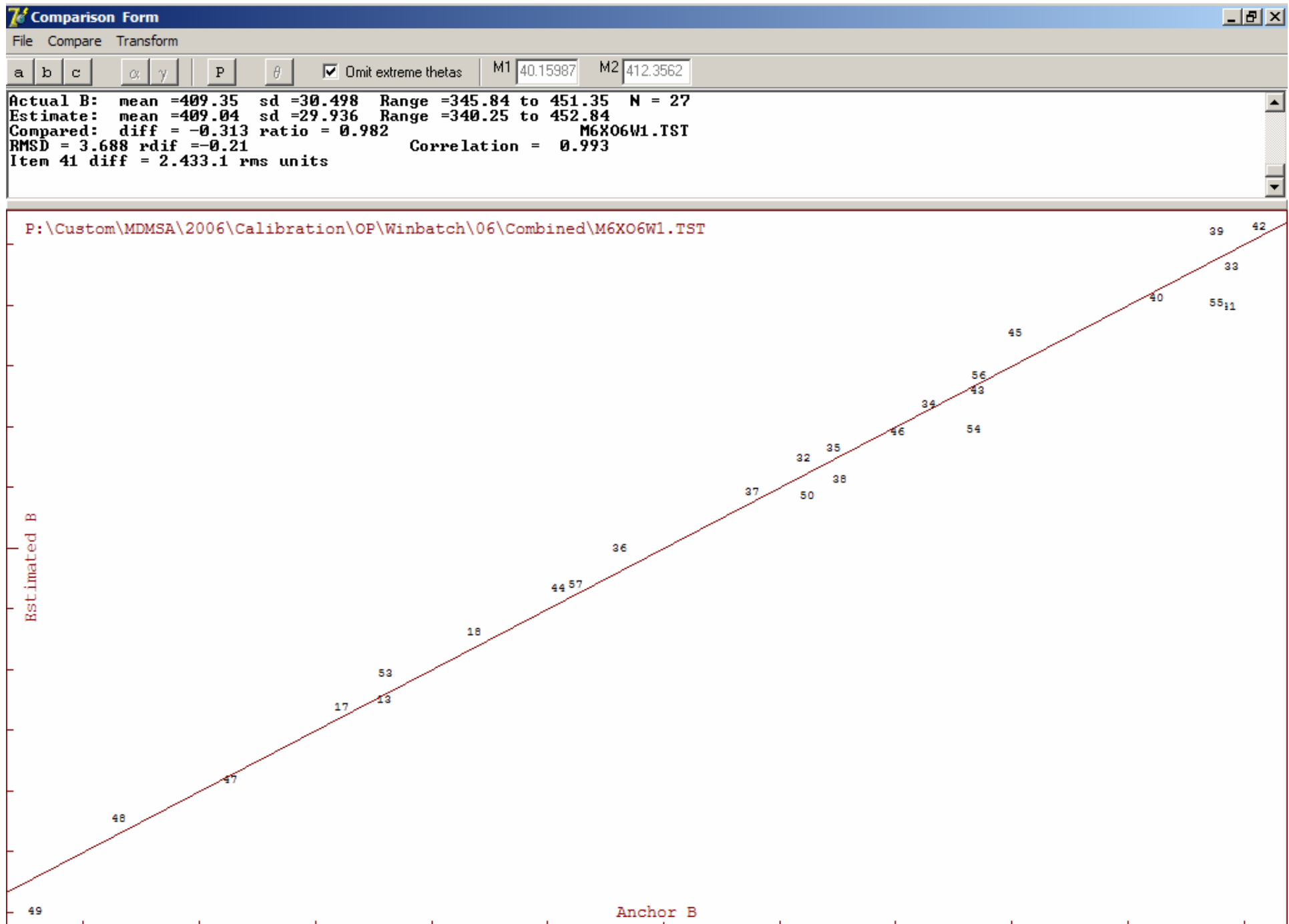


Figure 21. Estimated and Actual P Values, 2006 MSA Grade 6 Mathematics

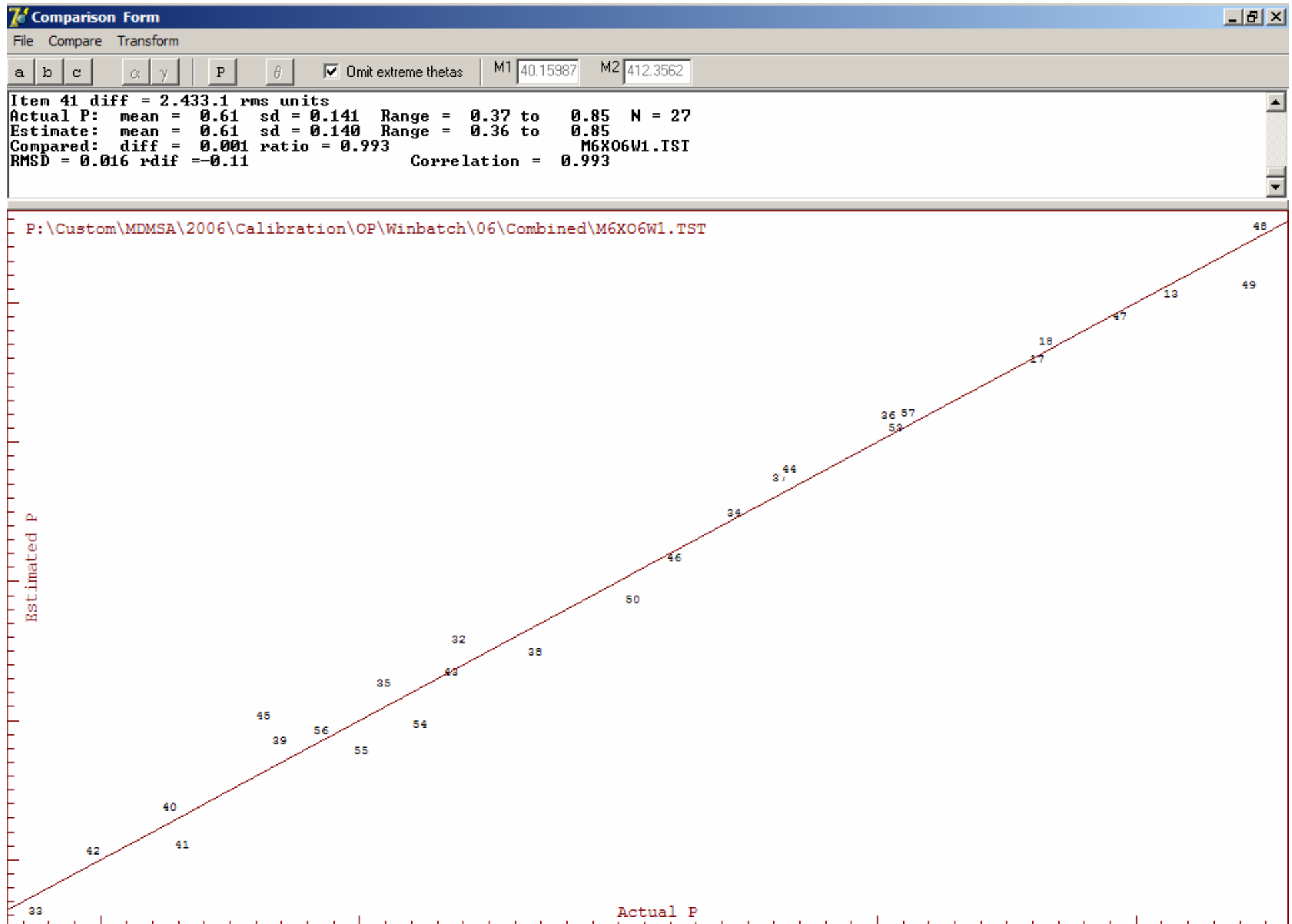


Figure 22. Stocking & Lord Test Characteristic Curves, 2006 MSA Grade 6 Mathematics

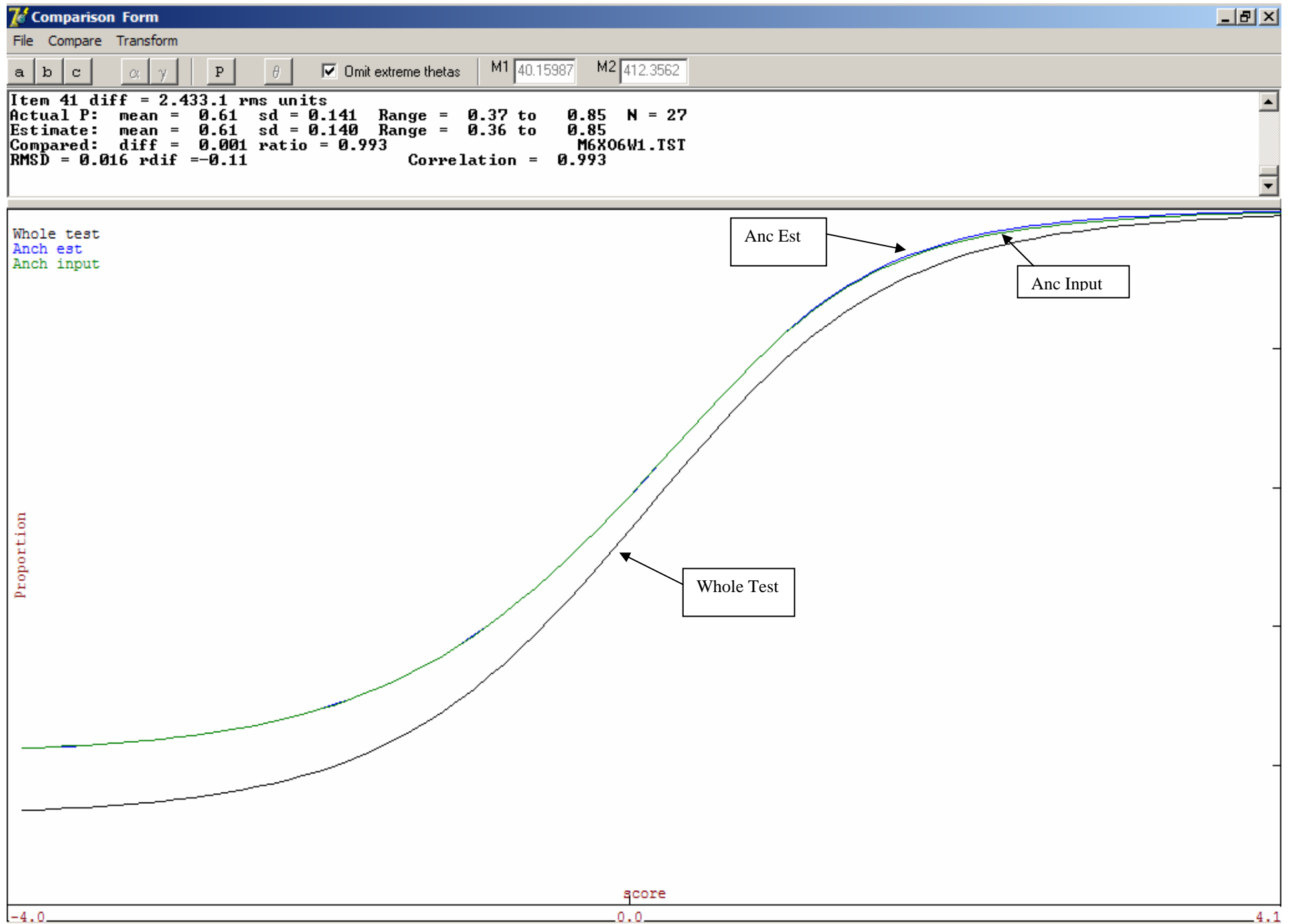


Figure 23. Estimated and Anchor A Parameter Values, 2006 MSA Grade 7 Mathematics

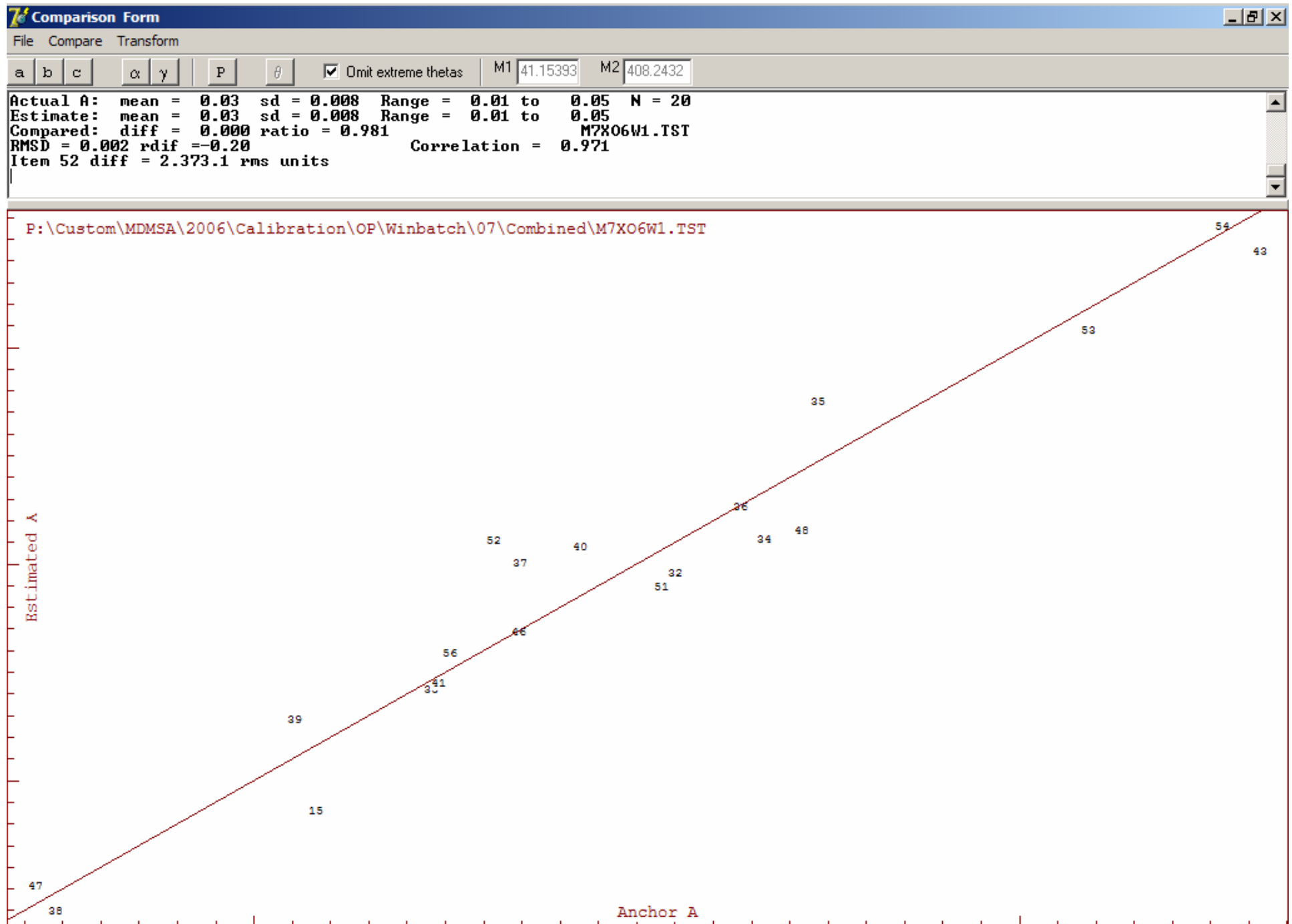


Figure 24. Estimated and Anchor B Parameter Values, 2006 MSA Grade 7 Mathematics

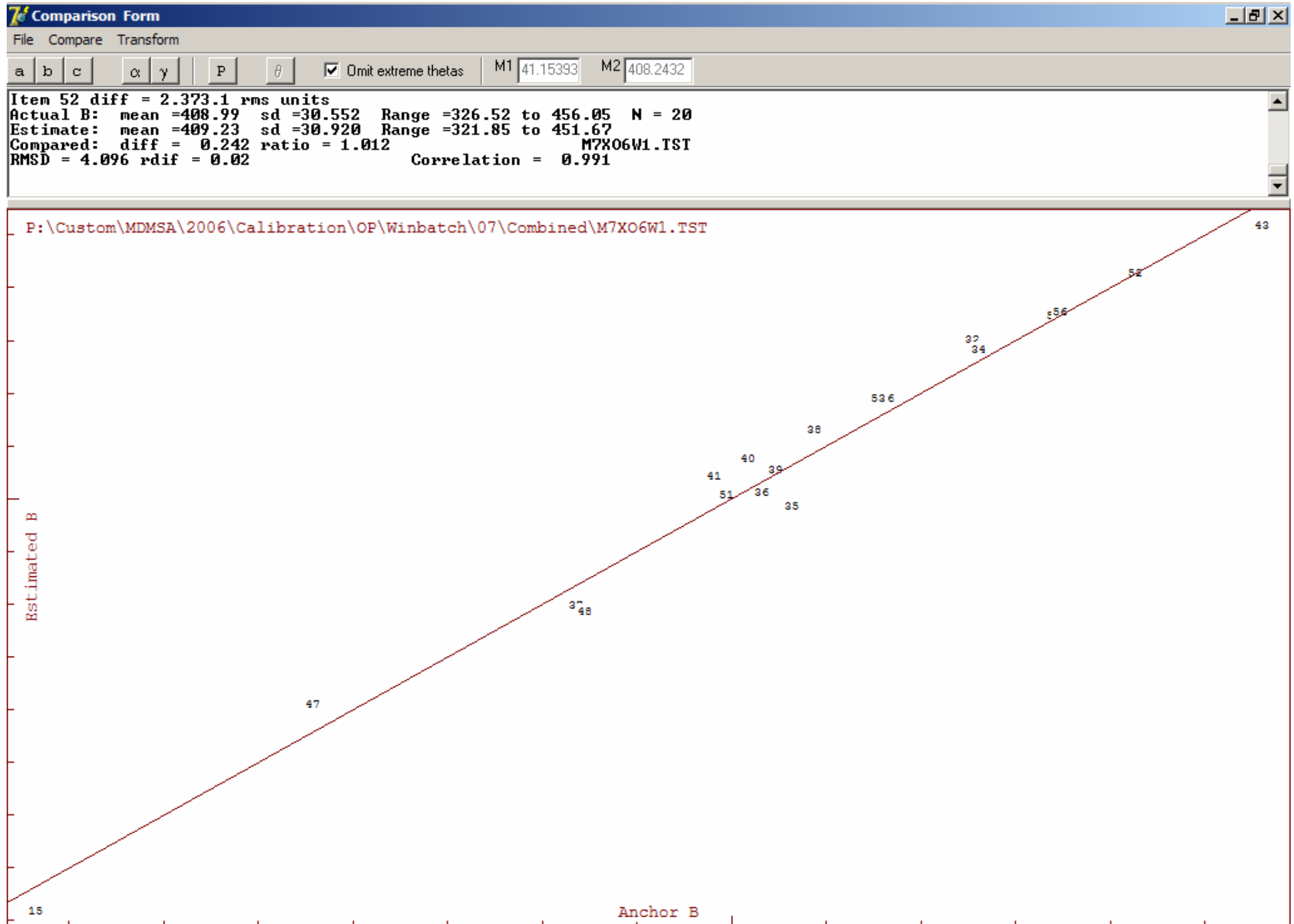


Figure 25. Estimated and Actual P Values, 2006 MSA Grade 7 Mathematics

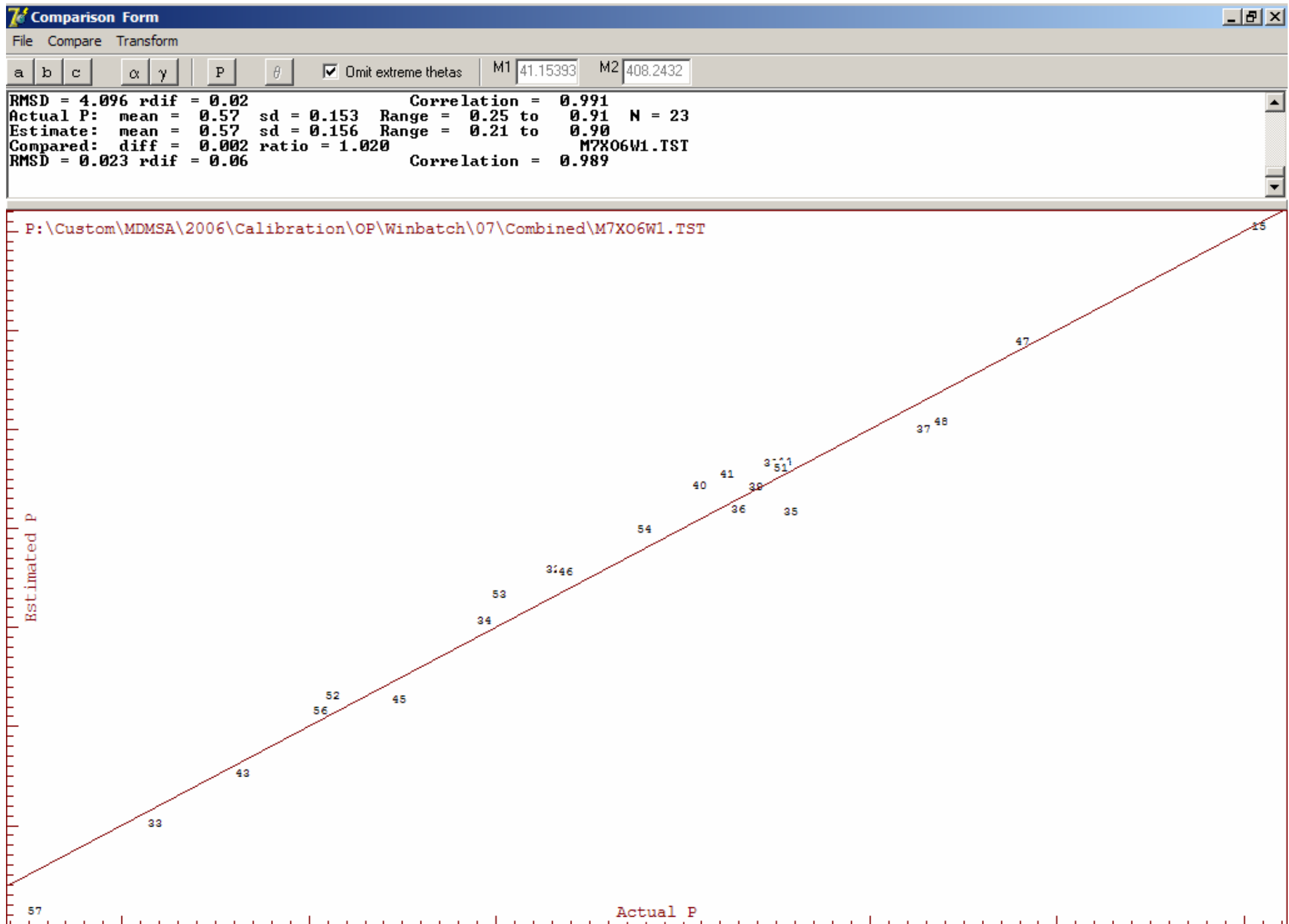


Figure 26. Stocking & Lord Test Characteristic Curves, 2006 MSA Grade 7 Mathematics

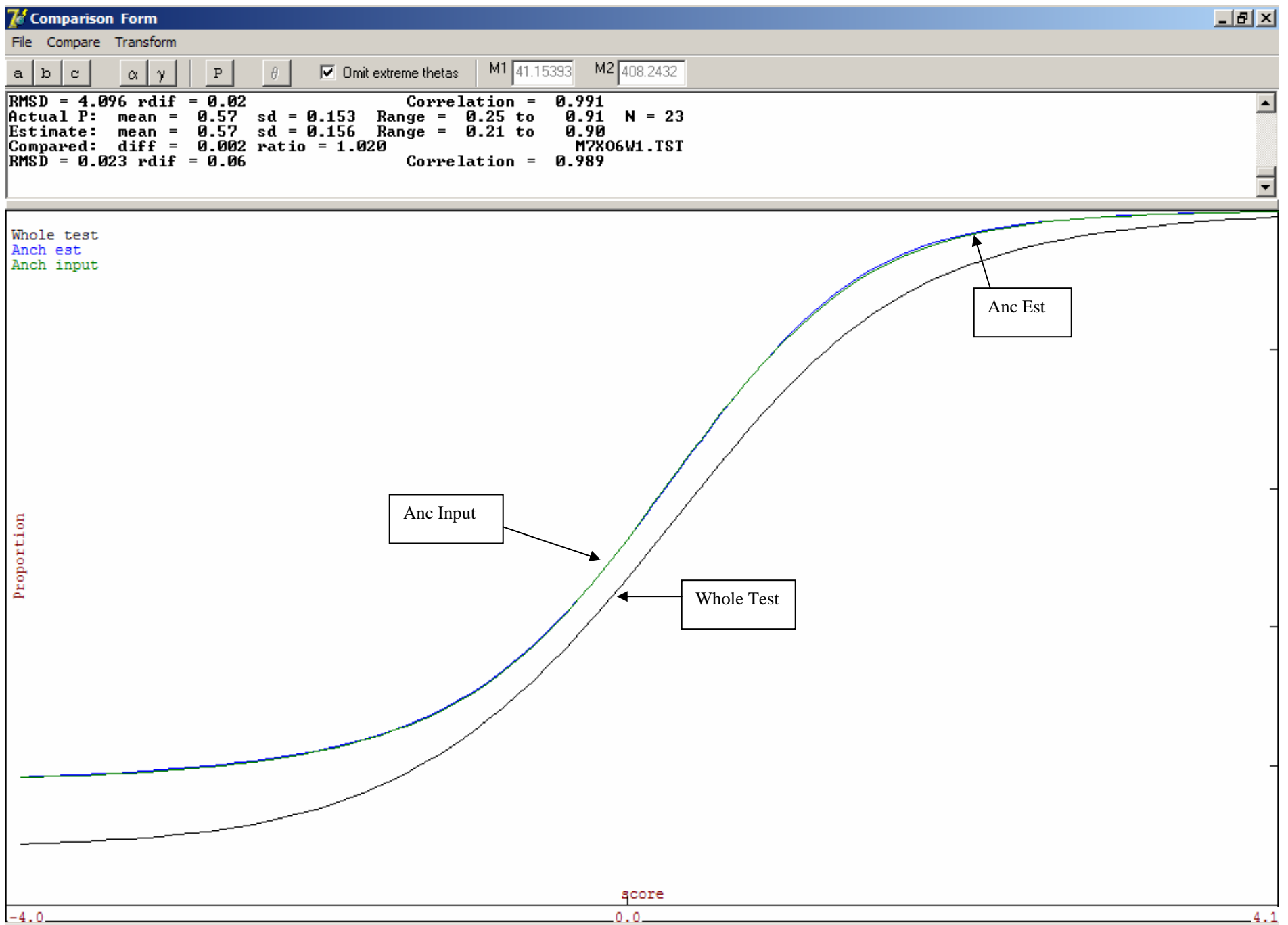


Figure 27. Estimated and Anchor A Parameter Values, 2006 MSA Grade 8 Mathematics

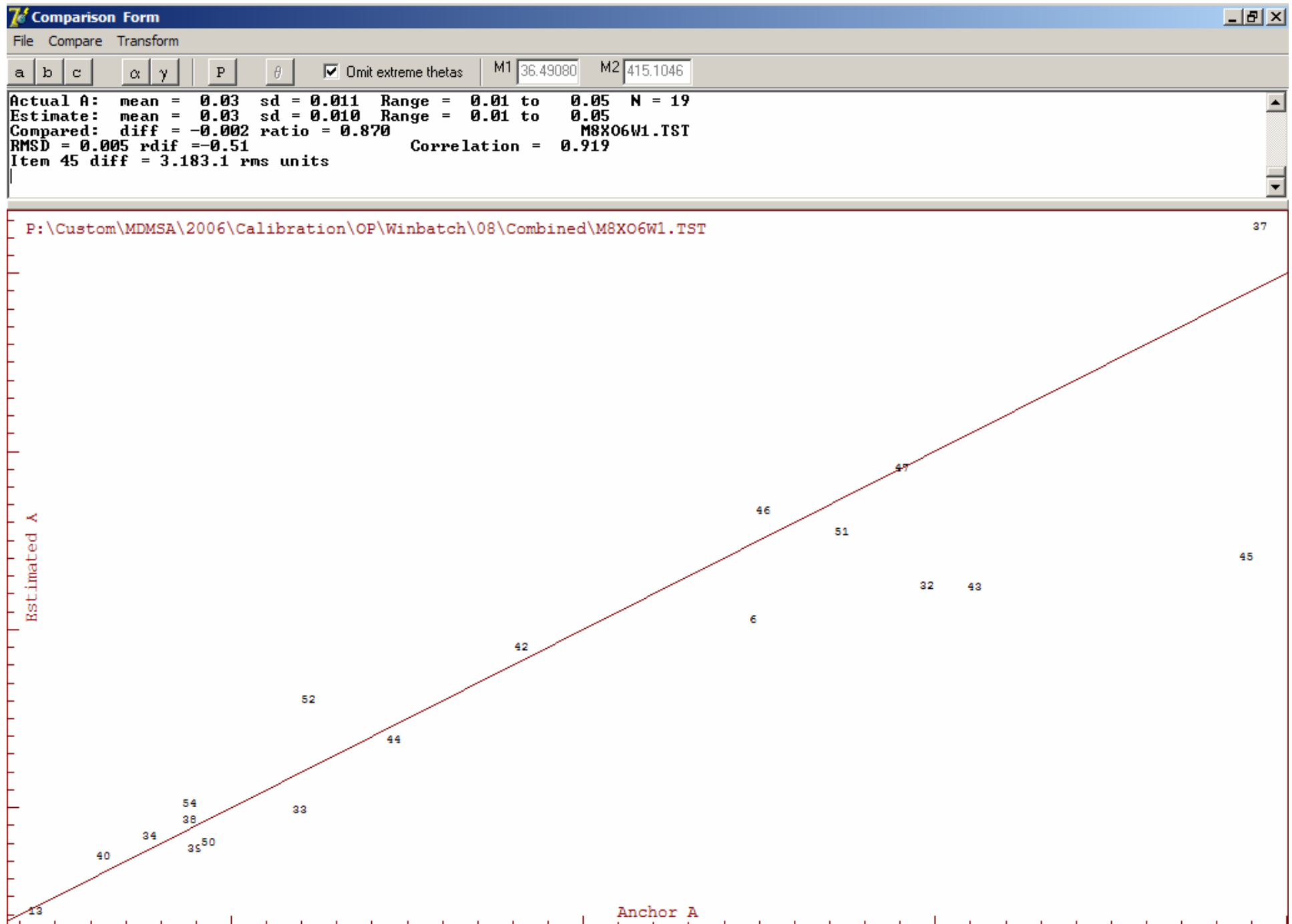


Figure 28. Estimated and Anchor B Parameter Values, 2006 MSA Grade 8 Mathematics

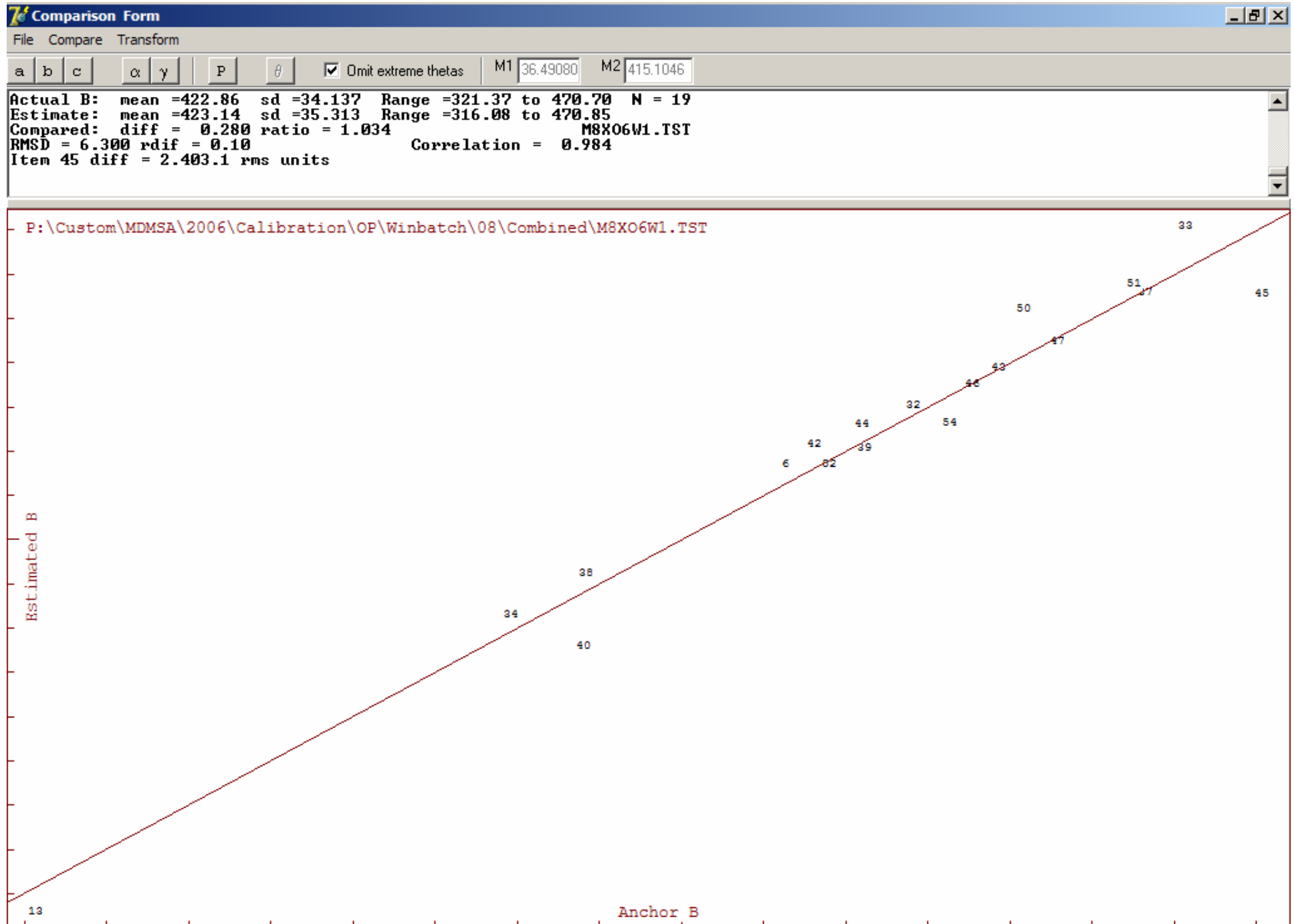


Figure 29. Estimated and Actual P Values, 2006 MSA Grade 8 Mathematics

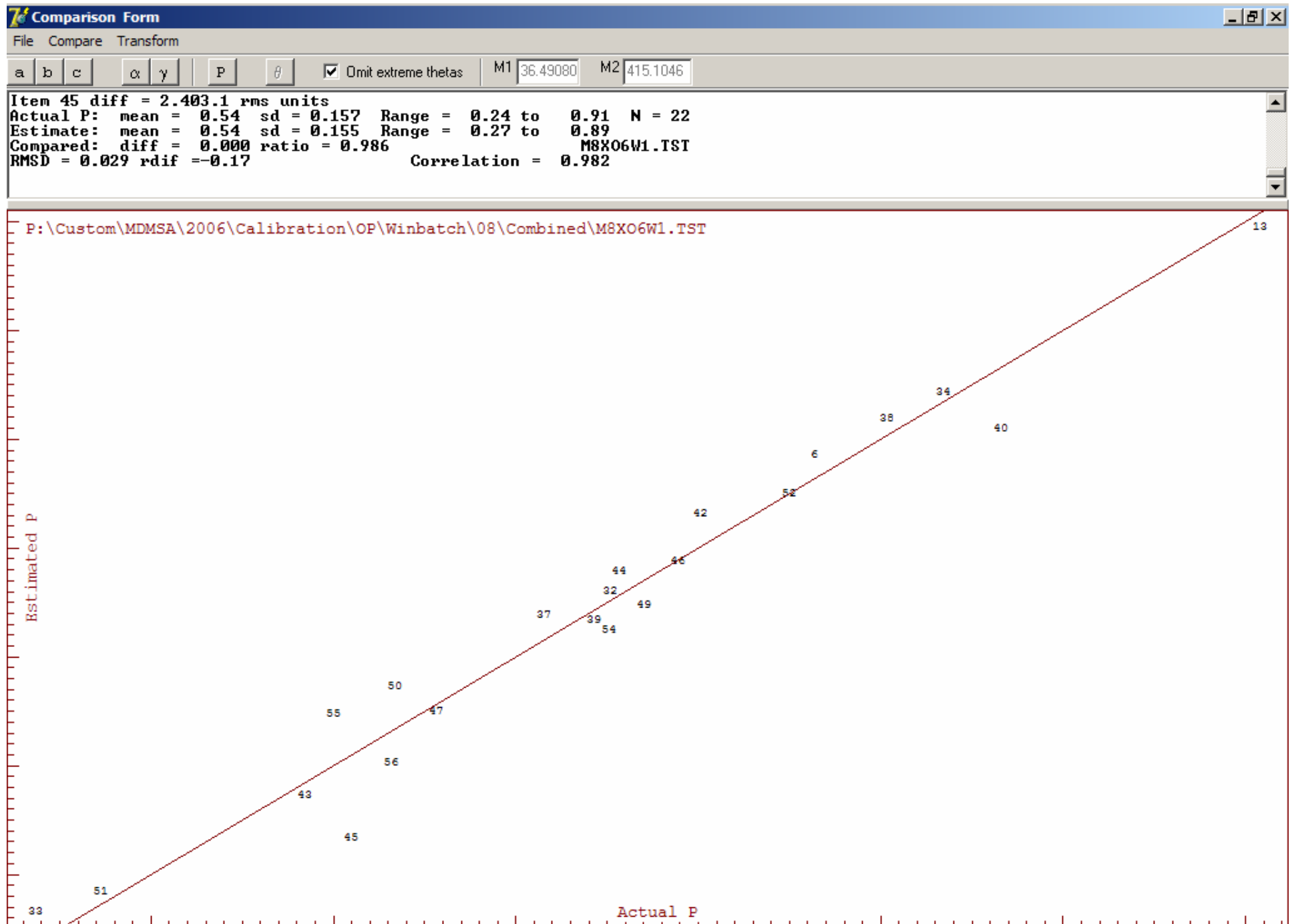


Figure 30. Stocking & Lord Test Characteristic Curves, 2006 MSA Grade 8 Mathematics

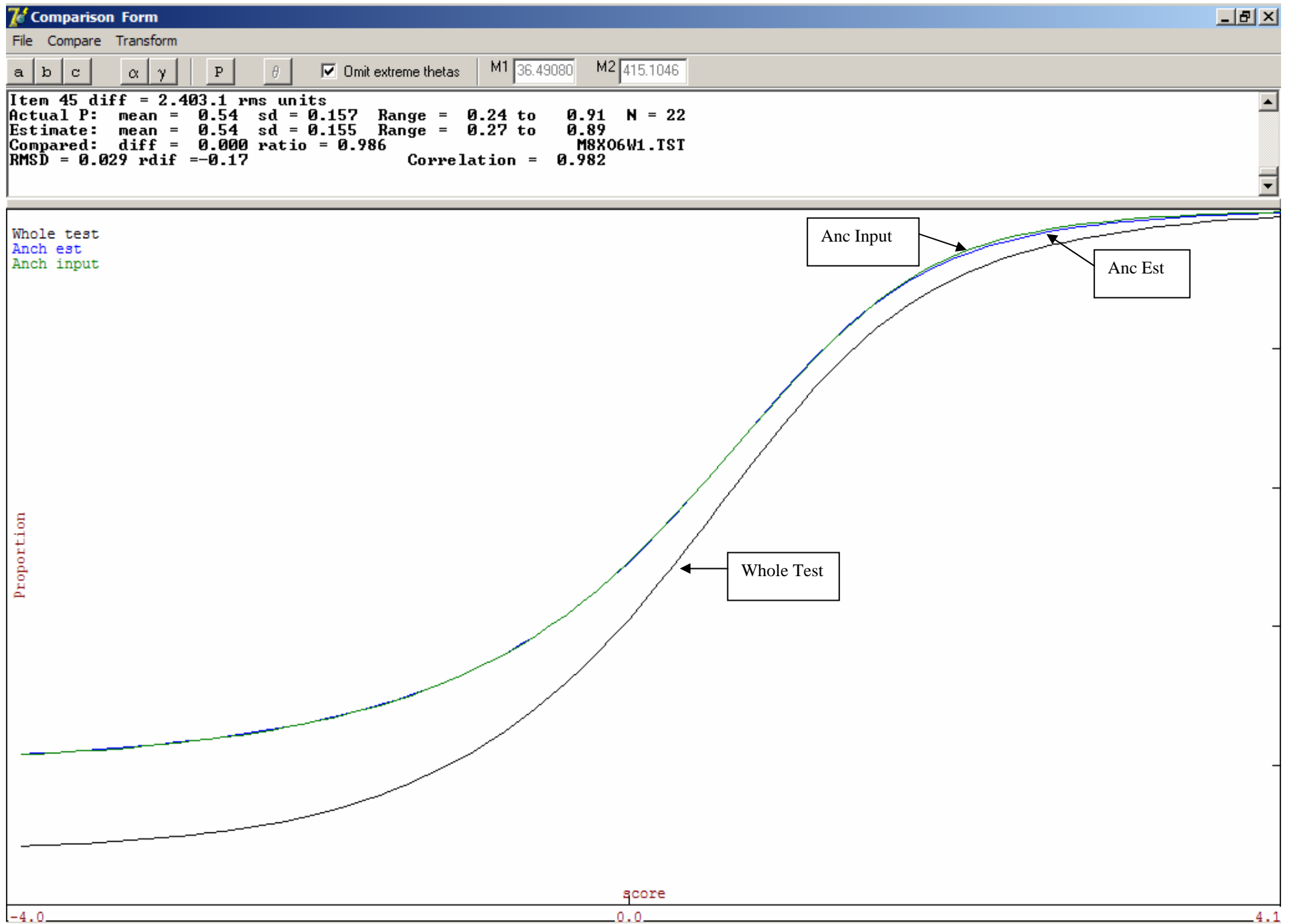


Figure 31. Grade 3 TCC & SE Plot, Form 1 and Form 2

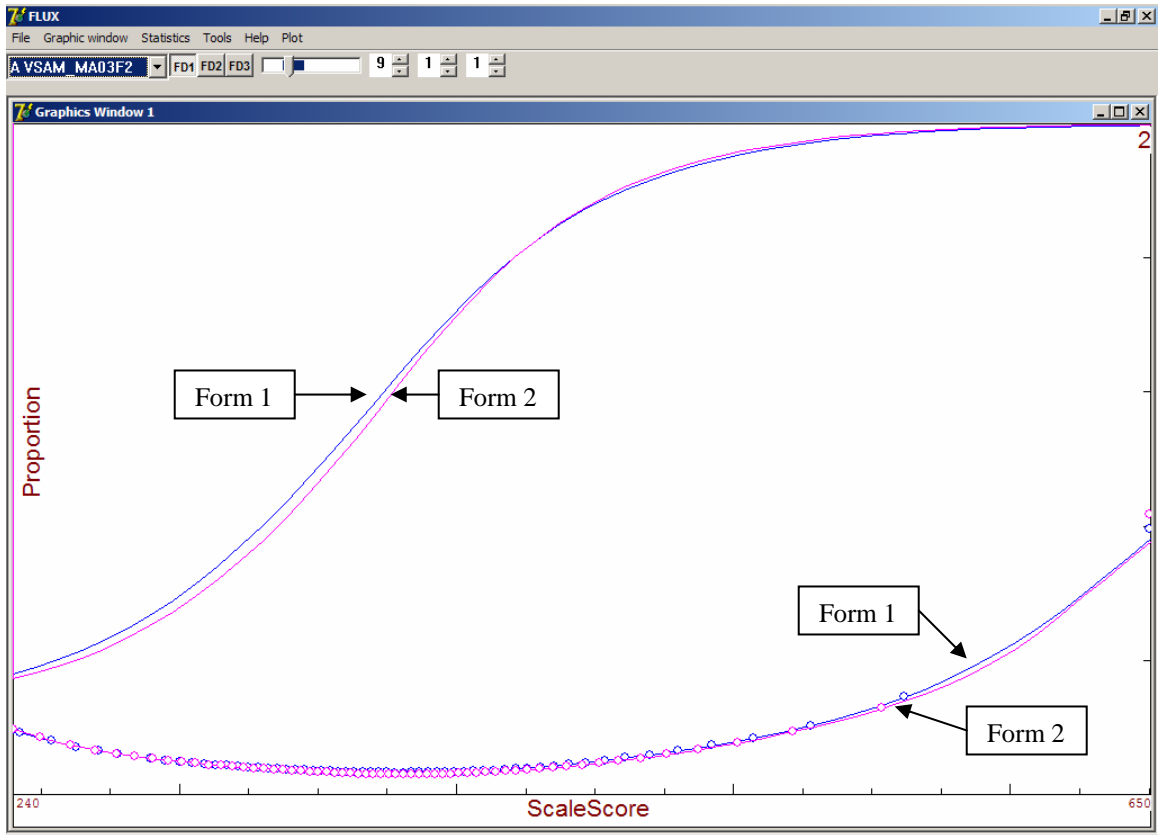


Figure 32. Grade 4 TCC & SE Plot, Form 1 and Form 2

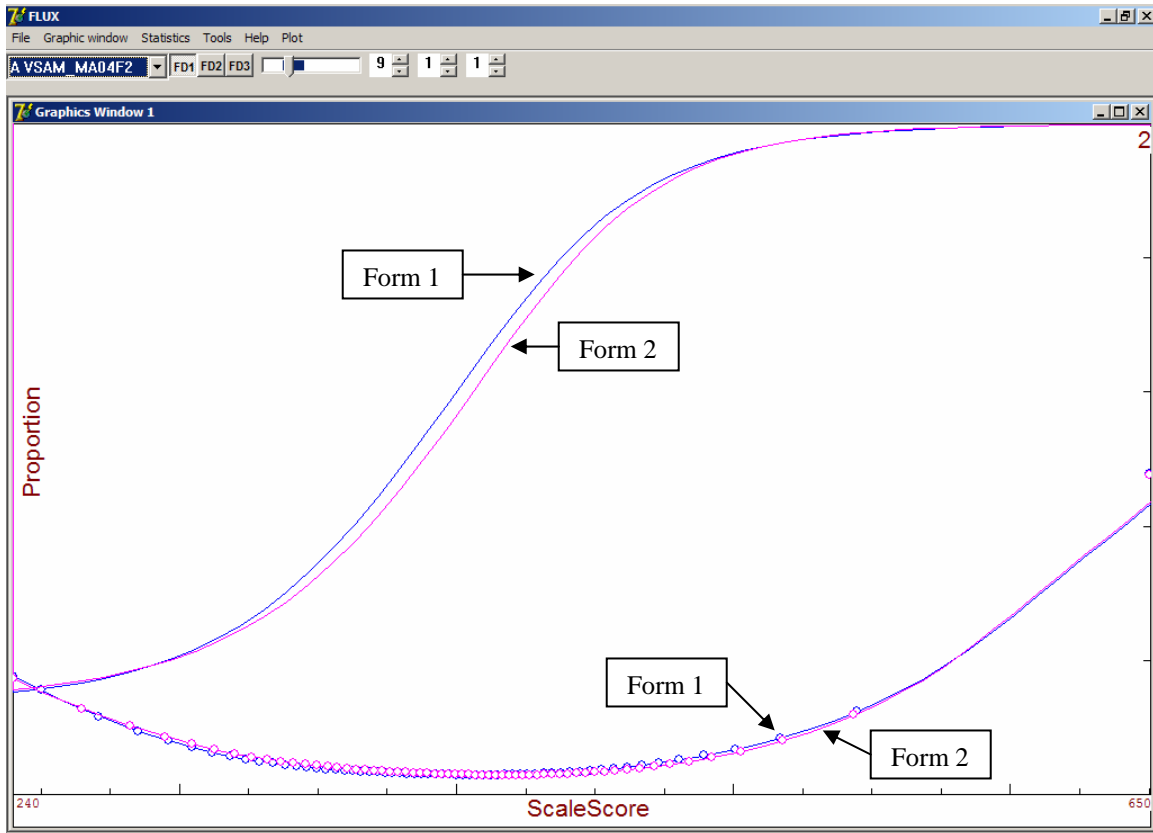


Figure 33. Grade 5 TCC & SE Plot, Form 1 and Form 2

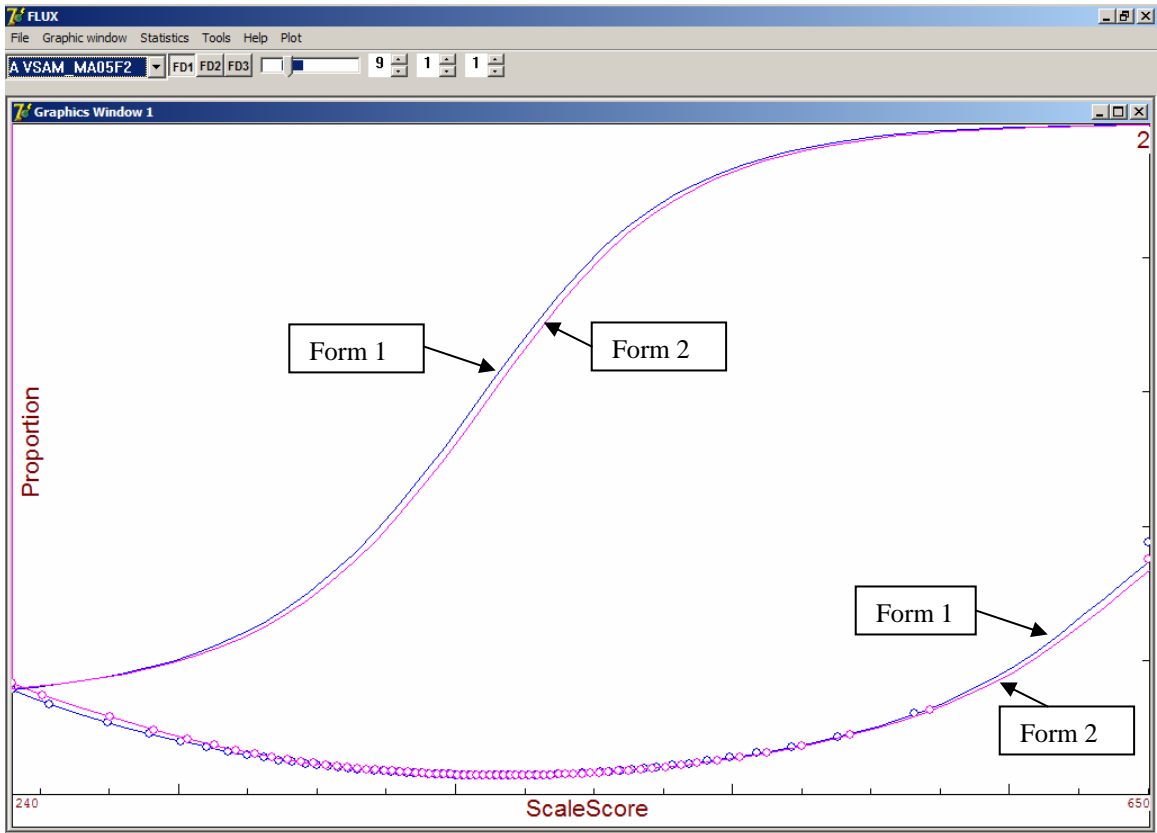


Figure 34. Grade 6 TCC & SE Plot, Form 1 and Form 2

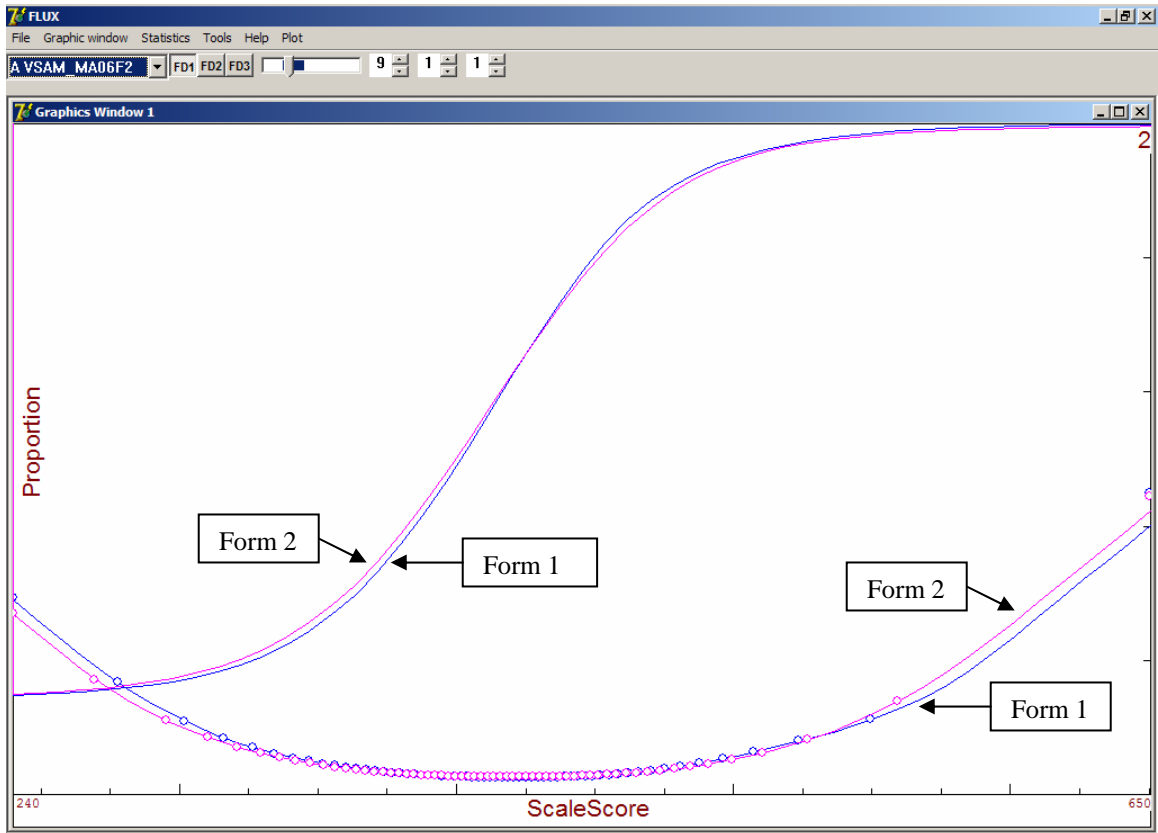


Figure 35. Grade 7 TCC & SE Plot, Form 1 and Form 2

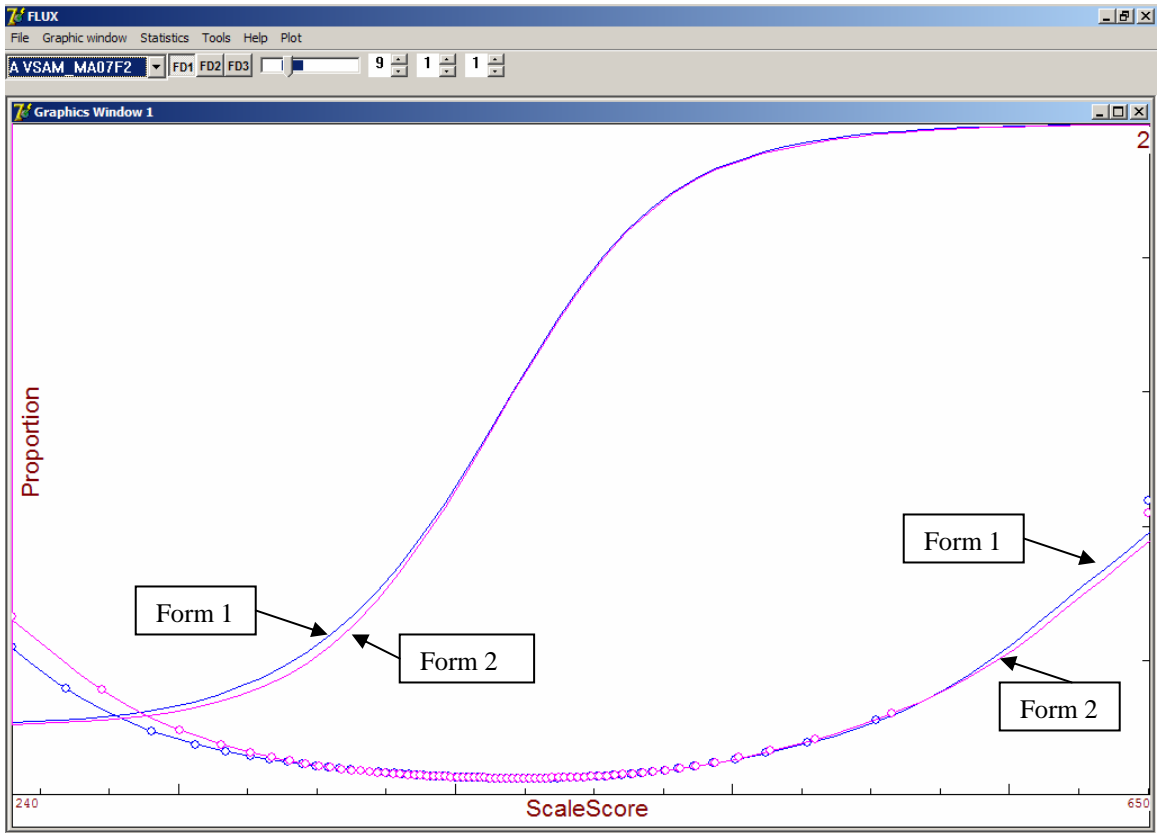


Figure 36. Grade 8 TCC & SE Plot, Form 1 and Form 2

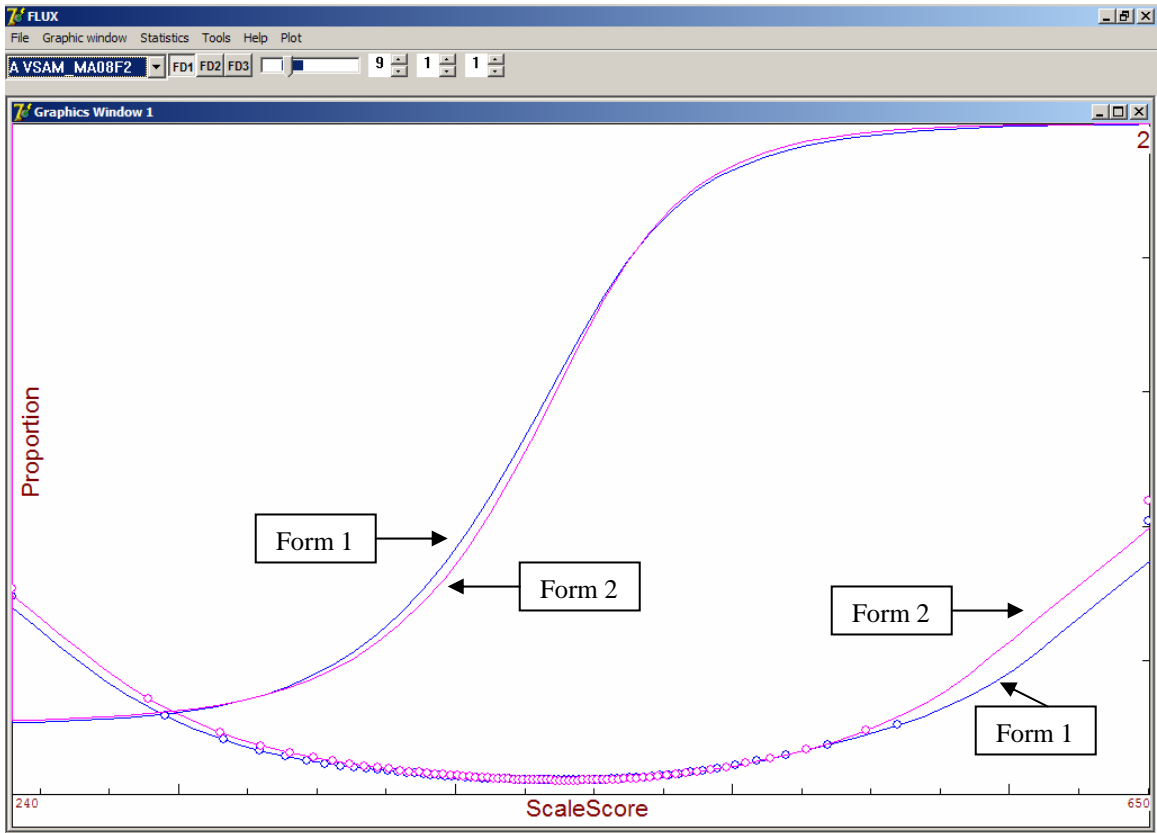


Table 17. 2005 and 2006 Summary Statistics for Schools in the MSA 2006 Calibration Sample.

Grade	Form	2005 Means for 2006 Calibration Schools			2006 Means for 2006 Calibration Sample		
		N	Mean	SD	N	Mean	SD
3	1				4529	414.02	44.29
3	2				3020	417.60	42.19
3	Combined	7698	411.56	49.54	7549	415.45	43.50
4	1				4550	413.93	43.38
4	2				3004	414.33	42.95
4	Combined	8105	404.68	45.03	7554	414.09	43.21
5	1				4732	420.52	42.32
5	2				3153	421.08	43.11
5	Combined	8510	411.94	45.93	7885	420.74	42.64
6	1				4848	407.36	49.13
6	2				3225	407.49	46.58
6	Combined	8609	401.11	45.94	8073	407.41	48.13
7	1				4982	405.73	48.04
7	2				3319	405.99	48.25
7	Combined	9170	398.85	48.86	8301	405.83	48.13
8	1				5097	412.32	43.05
8	2				3413	413.01	43.47
8	Combined	9087	406.14	43.46	8510	412.59	43.22

Table 18. MSA Score Trends: Population and Calibration Scale Score Means, 2004 to 2006

Grade	Year	Population N	Population Mean	Calibration N	Calibration Mean
3	2004	62,961	403.75	7036	403.22
	2005	61,509	410.99	6633	411.13
	2006			7549	415.45
4	2004	65,013	394.51	7358	392.62
	2005	63,330	403.93	6998	405.07
	2006			7554	414.09
5	2004	66176	402.18	7619	403.07
	2005	65,123	411.22	7425	411.17
	2006			7885	420.74
6	2004	68229	390.82	9326	389.27
	2005	65,846	402.05	8739	401.13
	2006			8073	407.41
7	2004	69327	391.13	9392	390.46
	2005	68,130	397.76	8820	399.95
	2006			8301	405.83
8	2004	68659	397.14	9378	397.22
	2005	68,696	405.11	8738	407.46
	2006			8510	412.59

Figure 37. Grade 3 Scale Score Distributions, 2006 Calibration Sample and 2005 Census

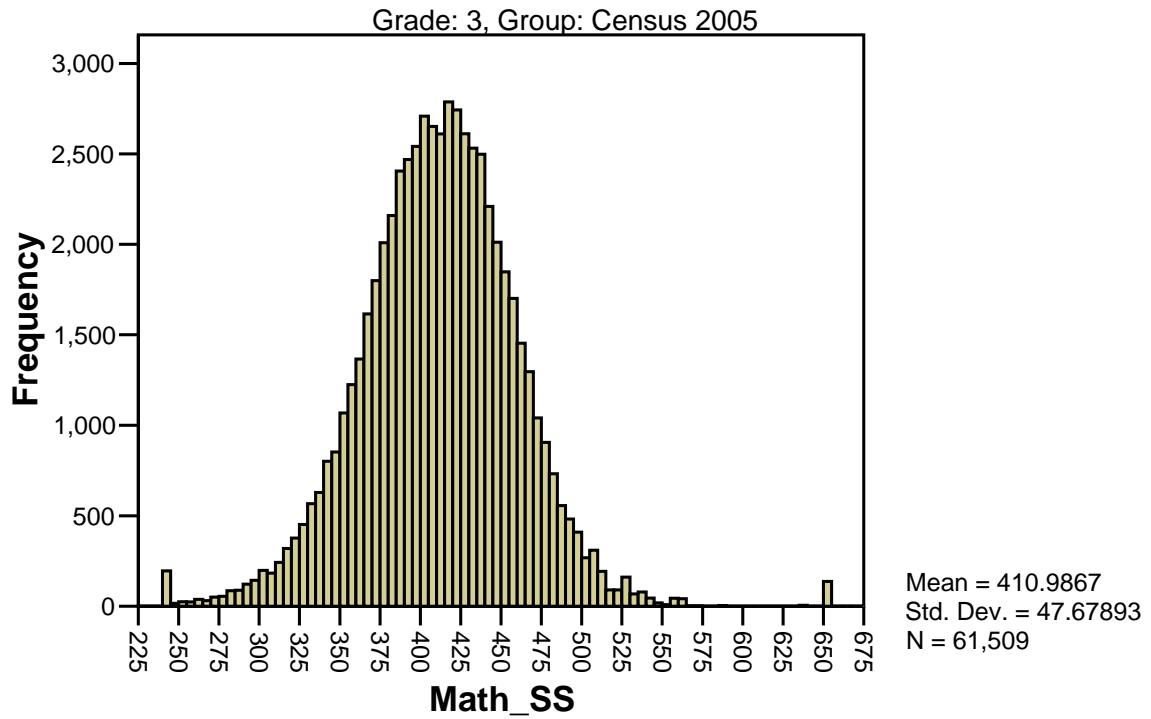
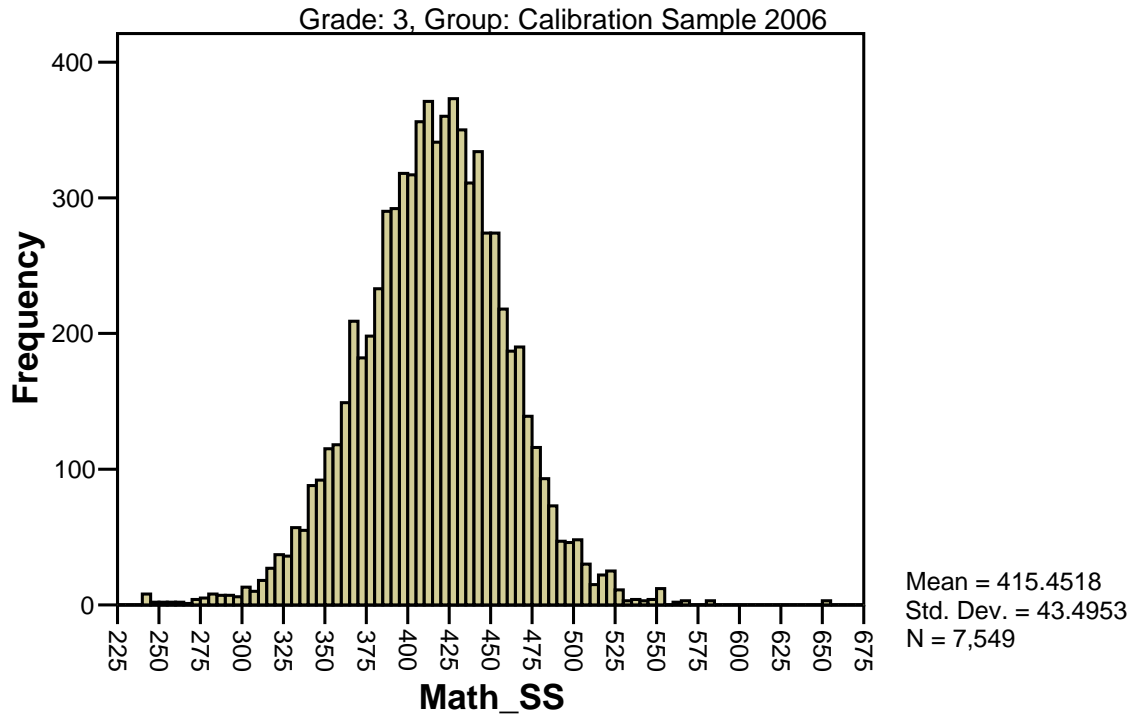


Figure 38. Grade 4 Scale Score Distributions, 2006 Calibration Sample and 2005 Census

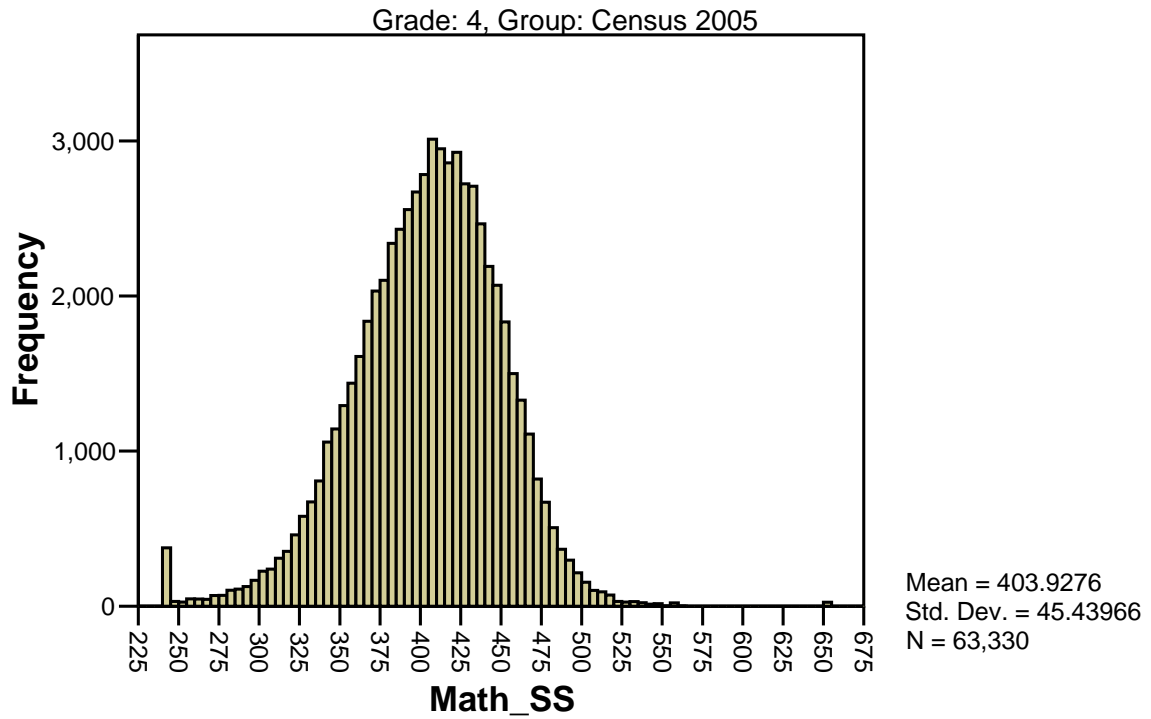
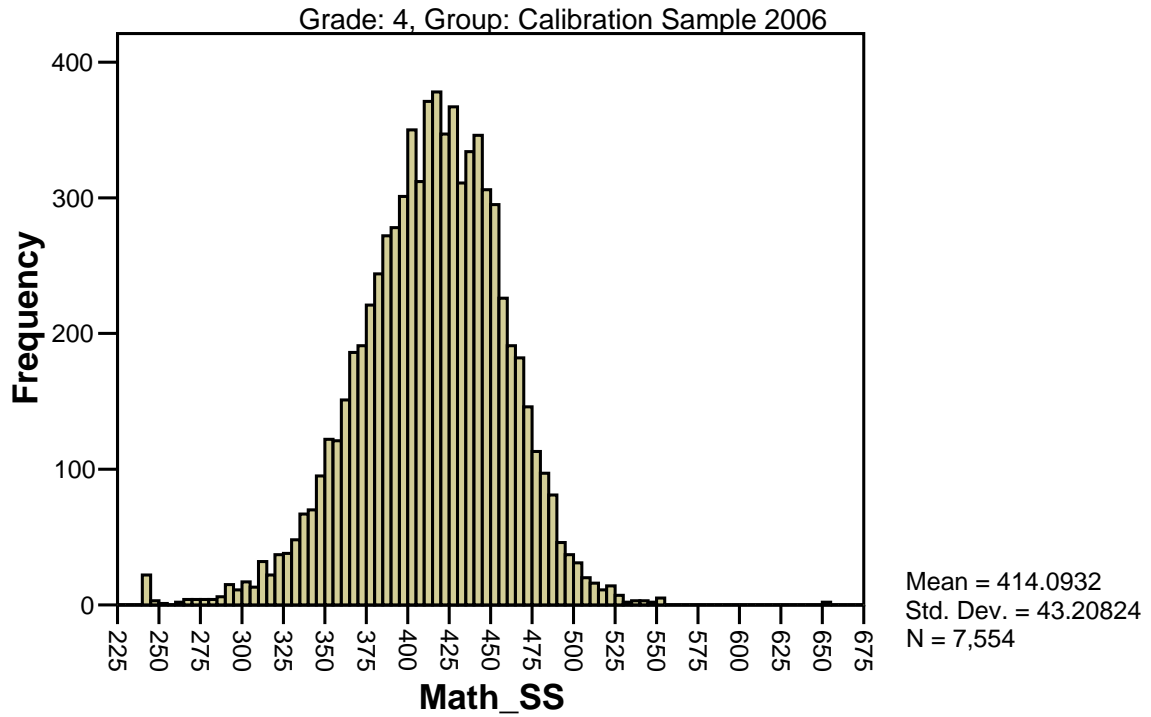


Figure 39. Grade 5 Scale Score Distributions, 2006 Calibration Sample and 2005 Census

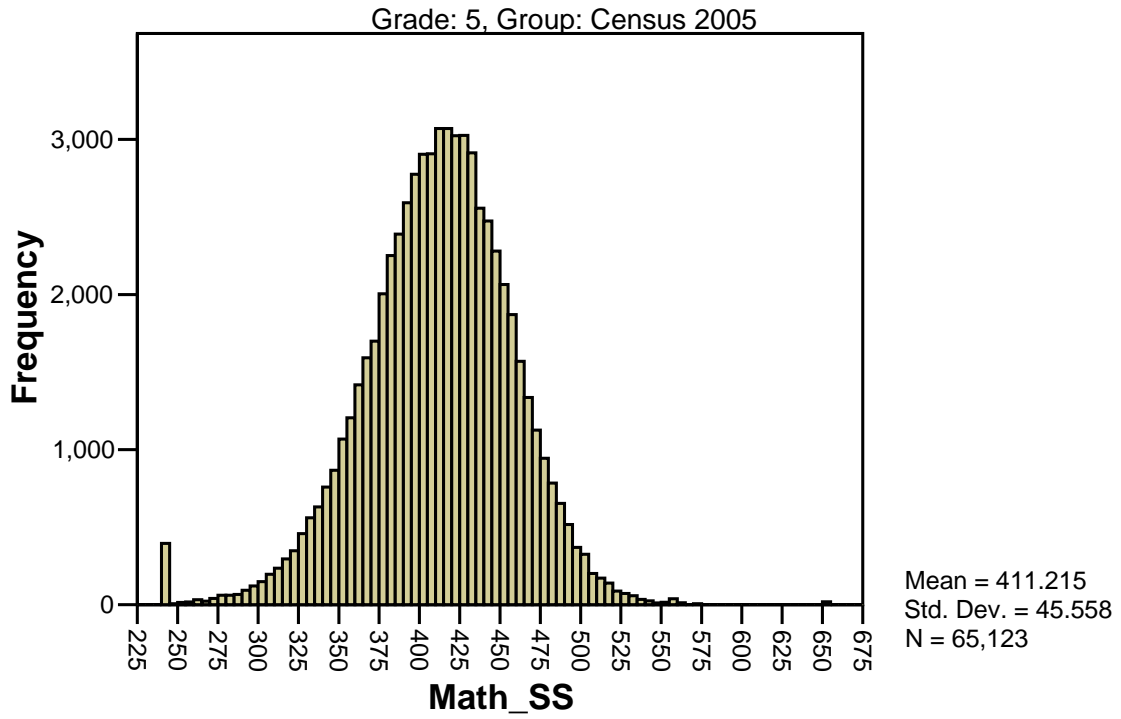
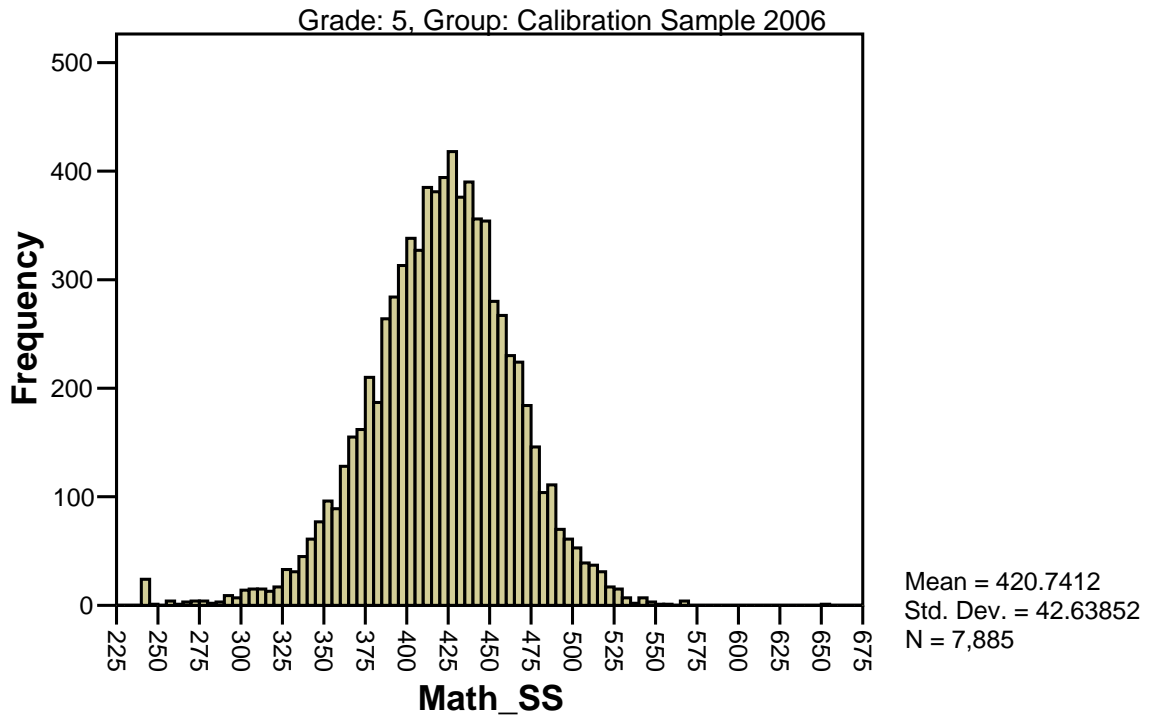


Figure 40. Grade 6 Scale Score Distributions, 2006 Calibration Sample and 2005 Census

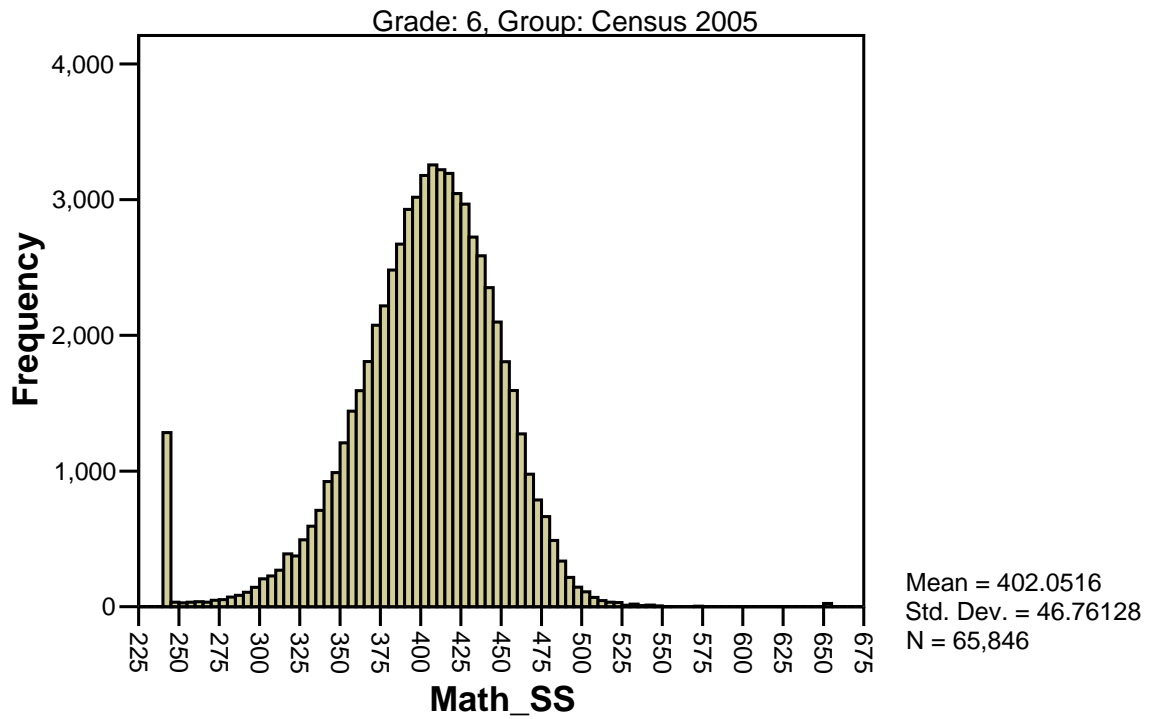
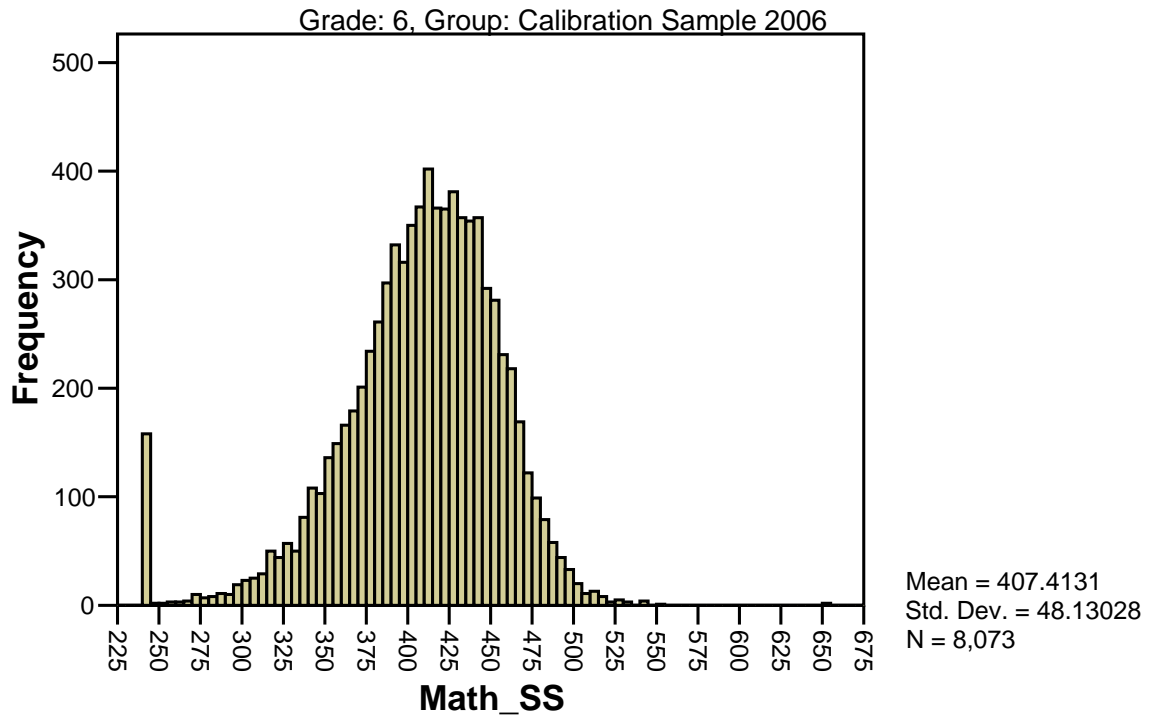


Figure 41. Grade 7 Scale Score Distributions, 2006 Calibration Sample and 2005 Census

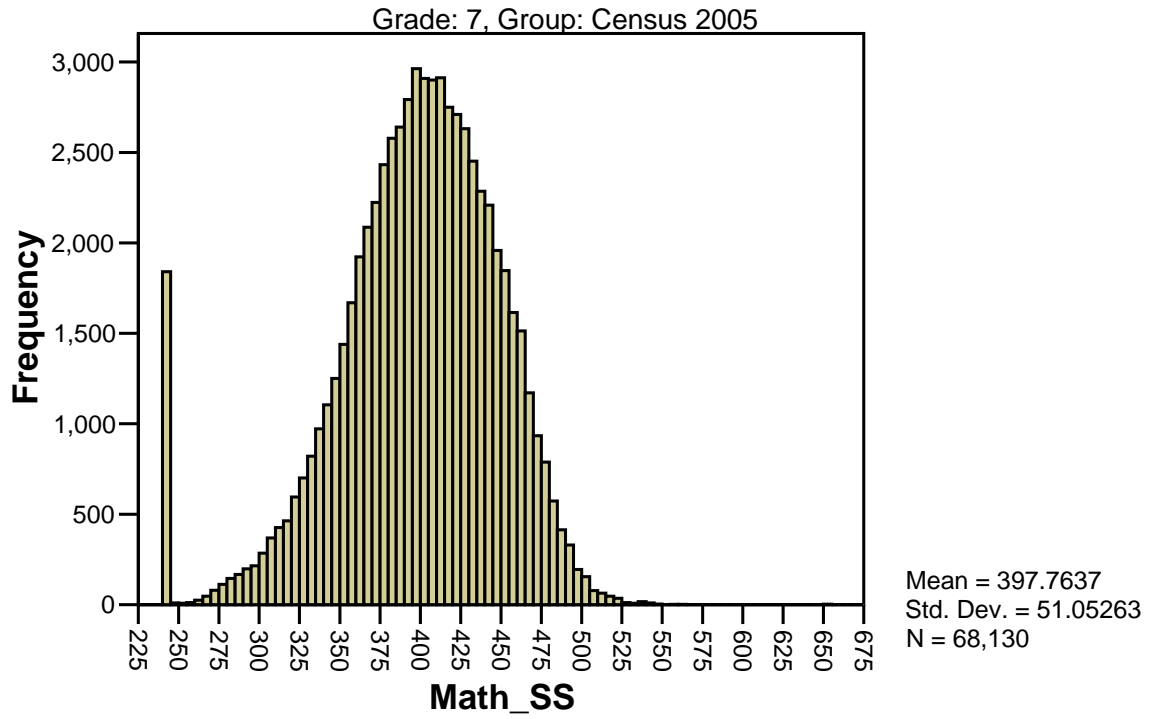
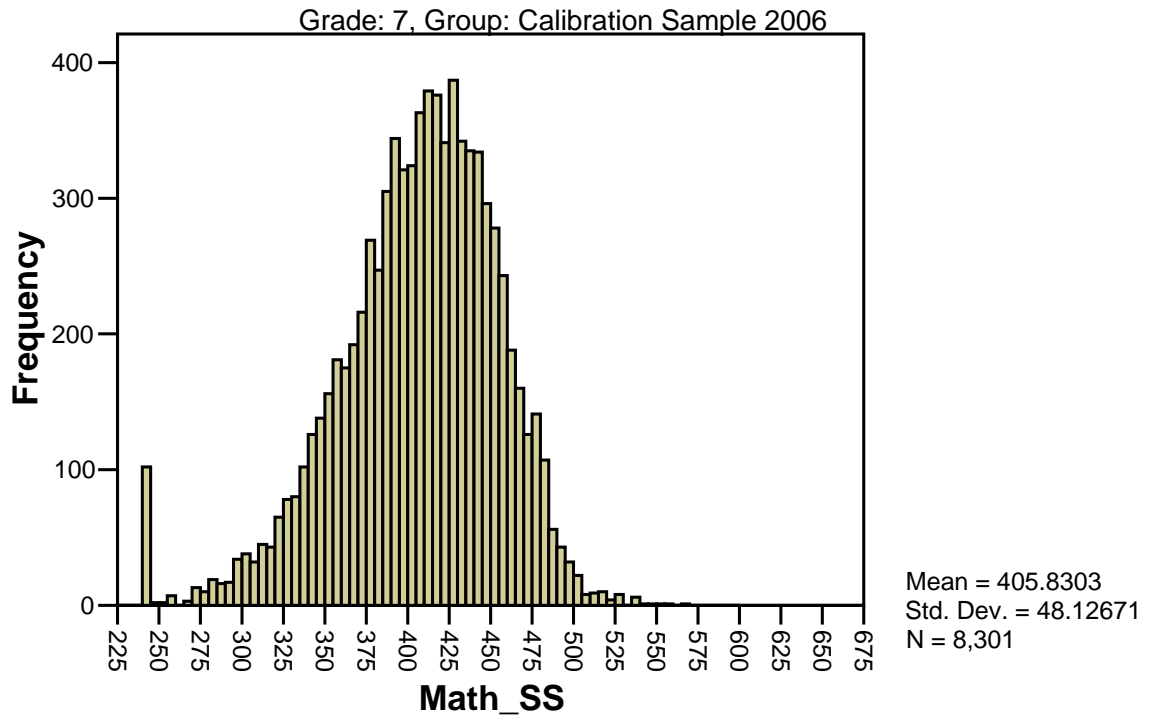


Figure 42. Grade 8 Scale Score Distributions, 2006 Calibration Sample and 2005 Census

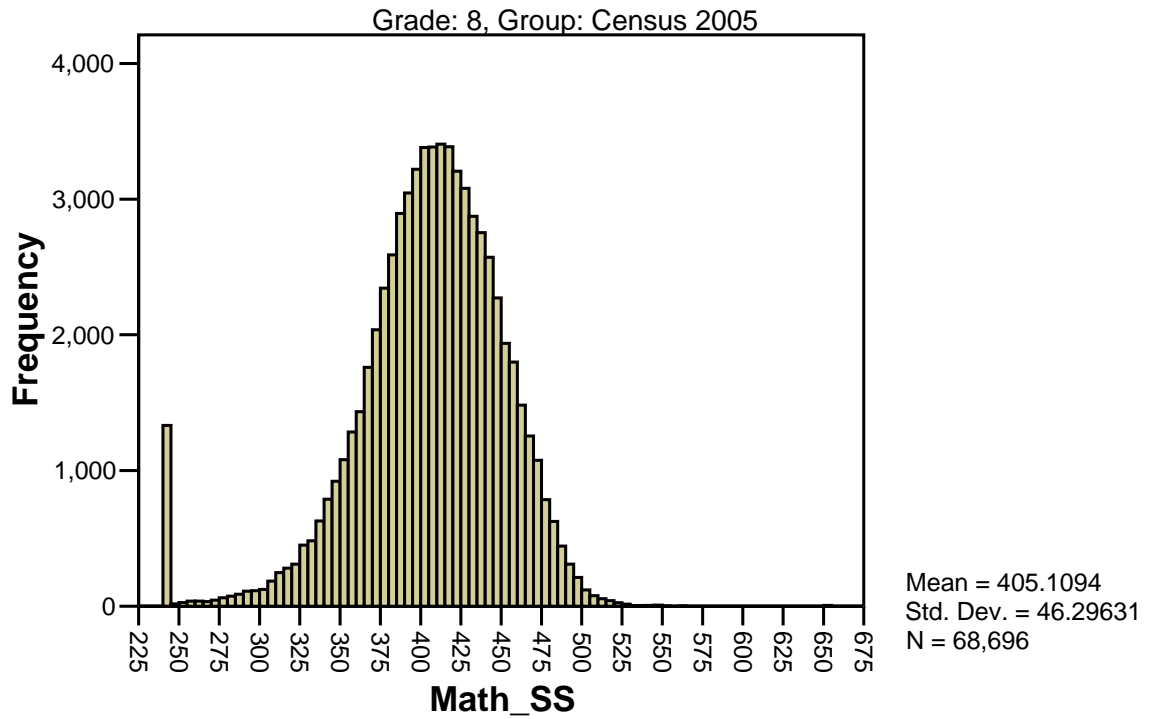
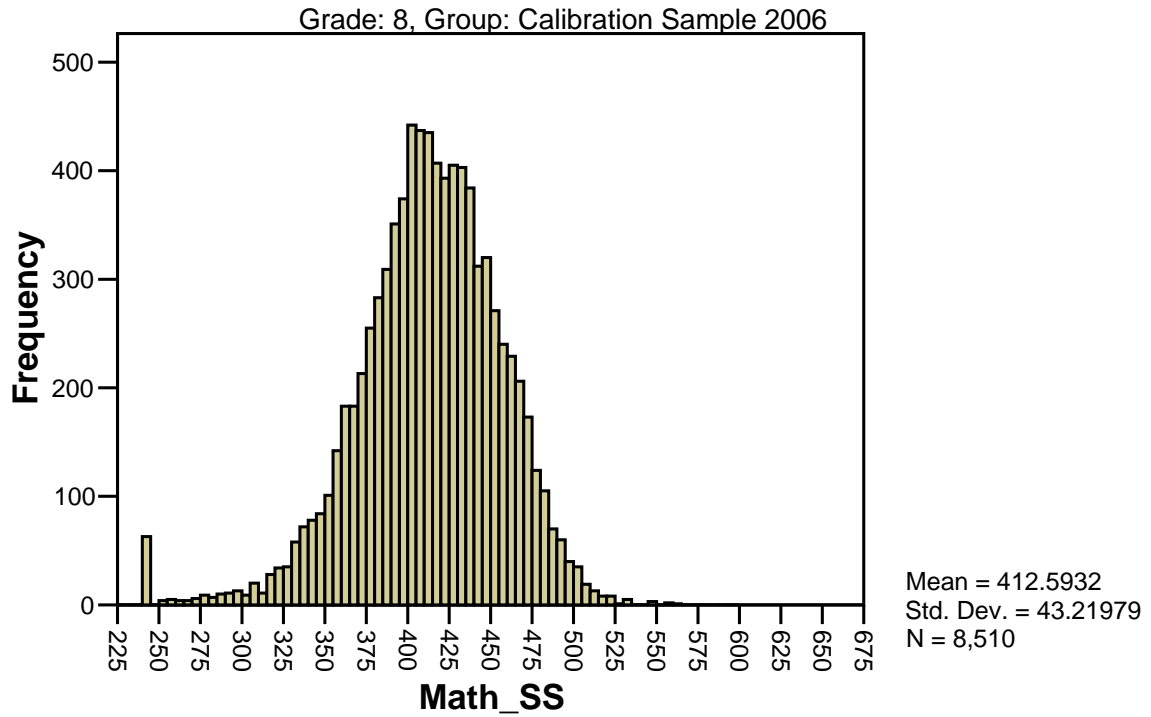


Figure 43. 2005 and 2006 Proportion of Students Above Cut in Calibration Sample Schools

