Item Analysis and Calibration of the New York English Language Arts and Mathematics A Regents Examinations

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Table of Contents

Principal Component Analysis for English Language Arts 1

Equating English Language Arts 3

Principal Component Analysis for Mathematics 5

Equating Mathematics 8

Item Analysis English Language Arts 8

Item Analysis for Mathematics 10

Bias Analysis 10

Frequency Distributions 11

Item Analysis of English Language Arts Item Tryout 11

Appendix A: Principal Component Analysis for English Language Arts 12

Appendix B: Partial Credit Model Analysis for English Language Arts 29

Appendix C: Principal Component Analysis for Mathematics A 48

Appendix D: Partial Credit Model Analysis for Mathematics A 89

Appendix E: Item Analysis for English Language Arts 106

Appendix F: Item Analysis for Mathematics A 115

Appendix G: Fairness Analysis for English Language Arts 122

Appendix H: Fairness Analysis for Mathematics 142

Appendix I: Frequency Distribution of Rasch Theta for English Language Arts 155

Appendix J: Frequency Distribution of Rasch Theta for Mathematics 161

Appendix K: Item Analysis for English Language Arts Limited Item Tryout 166

All of the min-forms for English Language Arts (ELA) and Mathematics were equated using the Partial Credit Model (PCM). The PCM is an extension of the Rasch model allowing for the analysis of open-ended items which permit students to receive partial credit. In ELA the open-ended items are scored from 0 to 6 points. In Mathematics the open-ended items vary from 0 – 2, 0 – 3, and 0 – 4 points possible. Because of differences in the mini-test form designs and the field test designs for ELA and Mathematics, different equating procedures were used for each test area.

Equating English Language Arts

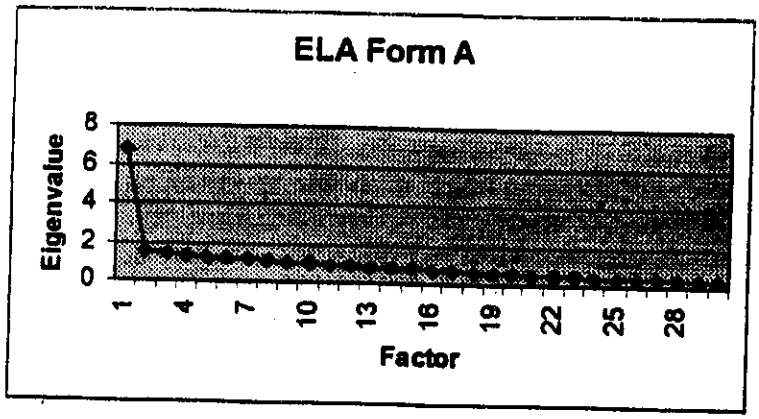
There were three series of mini-forms administered in the field test. Each form contained a part A and a part B taken from 6 complete forms A - F. A complete form consists of four parts: 1) Part 1 contains 6 multiple-choice and 1 open-ended; 2) Part 2 contains 10 multiple-choice and 1 open-ended; 3) Part 3 contains 10 multiple-choice and 1 open-ended; and 4) Part 4 contains 0 multiple-choice and 1 open-ended.

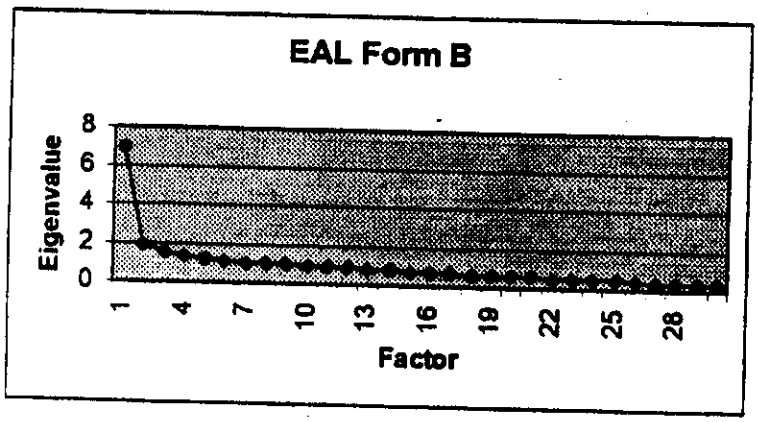
The mini-forms used in the field test are presented in the following table:

Field Test Form	Part A	Part B	N-count
101	C1	A2	671
102	B1	C4	666
103	B1	D3	572
104	D1	A4	554
105	E1	B2	614
106	A1	E4	630
107	F1	A3	646
108	A1	F2	632
201	C2	B3	623
202	C3	A4	602
203	A2	D4	593
204	D2	B3	630
205	E2	A3	623
206	E3	B4	604
207	F3	B4	602
208	B2	F4	628
301	A1	A2	278
302	A3	A4	238
303	B1	B2	265
304	B3	B4	237

The 300 series of mini-forms allowed for the matching of complete test forms. The 301 for was given to the same students as the 302 form. The 303 form was given to the same student as the 304 form. All four miniforms were given in the same schools, but the same students did not take the same forms. The 100 series were spiraled at the classroom level and the 200 series were spiraled at the student level within schools.

To examine the dimensionality of the ELA a Principal Component analysis was done on the two intact forms resulting from the 300 series of forms, i.e., Form 301 + Form 302 = Form A and Form 303 + Form 304 = Form B. The results from this analysis are presented in Appendix A. When examining the eigenvalues it appears that for both forms a dominant factor exists with several minor factors. The plot of these eigenvalues is presented below.





The percent of total variance explained by the first factor in Form A is 22.7% and in Form B it is 23.4%. The percent of total variance explained by the second factor in Form A is 5.3% and in Form B it is 6.5%. Contrasting the percent of variance explained by the first factor with the amount explained by the second factor would indicate the presence of a strong first factor. This supports the use of a Unidimensional Item Response Theory Model such as the Partial Credit Model. Further support for the use of the Partial Credit Model and the assumption of unidimensionality can be found in the next section of this report describing the equating of the ELA. This support comes from the fit statistics at both the item and test level.

Equating English Language Arts

Because of the spiraled administration, it was decided that the 200 series of mini-forms would be equated using an equivalent groups design. The first step in this procedure was to analyze each of the mini-forms (201 – 208) using BIGSTEPS and allowing all parameters to be estimated. Table 3.1 from the BIGSTEPS analysis of Form 201 is presented below. The column labeled SCORE represents the mean and standard deviation of the raw score on the mini-form. COUNT shows the number of test questions on the form. MEASURE is the mean and standard deviation of the Rasch Theta values for the sample and ERROR is the error associated with those estimates. MNSQ is the mean square for the INFIT and OUTFIT statistics. The INFIT statistics is a weighted fit statistic with the weighting base in the information provided by the examine, i.e., how closely the item difficulty matches the students ability. In most cases the MNSQ of the INFIT would be preferred when judging the fit of the PCM to the data. With sample sizes of the magnitude used in this study, fit statistics between 1.3 and .7 are considered adequate. A perfect fit between the PCM and the data would produce a MNSQ of 1.00. The PERSON SEP REL. is a measure of the test reliability similar to that of a coefficient alpha.

The second half of the table gives similar information for the items.

```
TABLE 3.1 ELA 201 first run                                          R MODEL  "BIGSTEPS" RASCH ANALYSIS  VER. 2.27
Feb  1  5:42 1999   INPUT:   623 PERSONS    22 ITEMS    ANALYZED:   623 PERSONS    22 ITEMS    53 CATEGORIES
-------------------------------------------------------------------------------------------------------------------

     SUMMARY OF   623 MEASURED (NON-EXTREME) PERSONS
-----------------------------------------------------------------------------------------
            SCORE      COUNT      MEASURE   ERROR      MNSQ  INFIT   MNSQ OUTFIT
-----------------------------------------------------------------------------------------
  MEAN      [illegible]  22.0        [illegible]   .47       .99     .0    .99     .0
  S.D.       5.6         .0        1.[illegible]   .08       .38     .9    .45     .9
-----------------------------------------------------------------------------------------
  [illegible]  .4[illegible]  ADJ.S.D.    1.06   PERSON SEP  . 2.27   PERSON SEP REL.   .84
-----------------------------------------------------------------------------------------

     [illegible] OF   22 MEASURED (NON-EXTREME) ITEMS
-----------------------------------------------------------------------------------------
            SCORE      COUNT      MEASURE   ERROR      MNSQ  INFIT   MNSQ OUTFIT
-----------------------------------------------------------------------------------------
  [illegible]  [illegible]  [illegible]        .00       .09      1.00     .0    .99     .0
  [illegible]  [illegible]     .0            .91       .02       .13    2.8    .24    2.6
-----------------------------------------------------------------------------------------
  [illegible]  .   ADJ.S.D.    .90   ITEM  SEP    9.62   ITEM  SEP REL.   .99
-----------------------------------------------------------------------------------------

[illegible] [illegible] MEASURED ITEMS
```

The next table presents the Item statistics for mini-form 201. which is taken directly from the BIGSTEPS output. The column "NUM" is the sequence numbers for the items in the data file. The column "SCORE" is the sum of the points received by those responding to the question. "COUNT" is the number of students responding to the item. SCORE divided by COUNT would give the mean score (or p-value for the multiple-choice items). The Rasch difficulty is presented in column "MEASURE" followed by the error of estimate. The mean and standard deviations for these difficulty values can be found in the previous tables with the summary information. The next four columns contain the fit statistics for each item. The "PTBIS" column is the point biserial or item-test correlation for every item. The column headed "NAME" provides the item number based on location in the data set. In all cases the open-ended items appear as the last two items in the

test even though the first of the open-ended questions was given at the end of Part A in the mini-forms.

The INFIT statistic is a measure of the fit weighted by where the examinees are located relative to the item difficulty. The OUTFIT gives all examinees equal weight in computing the fit and tends to be sensitive to very easy and difficult items. Because these tables come from the equatings, the items show some item displacement. Item displacement represents the difference between what the difficulty value would have been had it been free to vary without fixing the anchor items.

TABLE 14.1 ELA 201 first run
Feb 1 5:42 1999 INPUT: 623 PERSONS 22 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 623 PERSONS 22 ITEMS . 53 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	401	623	.038	.090	1.17	4.1	1.29	3.7	.23	1
2	432	623	-.231	.093	1.16	3.4	1.17	1.9	.24	2
3	489	623	-.794	.102	1.05	.9	1.10	.8	.30	3
4	481	623	-.707	.101	1.17	3.0	1.45	3.5	.18	4
5	447	623	-.369	.095	1.08	1.8	1.25	2.5	.29	5
6	303	623	.824	.087	1.16	4.2	1.20	3.4	.24	6
7	381	623	.205	.088	1.04	1.0	1.01	.2	.35	7
8	515	623	-1.100	.110	1.08	1.2	1.05	.4	.26	8
9	554	623	-1.679	.130	.67	-1.4	.69	-1.6	.39	9
10	552	623	-1.644	.129	.66	-1.6	.60	-2.4	.42	10
11	341	623	.525	.087	.91	-2.4	.92	-1.4	.46	11
12	333	623	.588	.087	1.00	.0	.99	-.1	.39	12
13	467	623	-.563	.098	.80	-4.2	.68	-3.5	.55	13
14	422	623	-.055	.091	.84	-4.0	.75	-3.5	.53	14
15	475	623	-.644	.099	.78	-4.5	.63	-3.9	.56	15
16	262	623	1.149	.088	1.01	.3	1.07	1.2	.37	16
17	334	623	.580	.087	.94	-1.6	.92	-1.4	.44	17
18	448	623	-.378	.095	.83	-3.7	.73	-3.2	.52	18
19	216	623	1.530	.091	1.24	5.4	1.45	5.5	.17	19
20	369	623	.302	.088	.97	-.9	.95	-.7	.42	20
21	1654	623	.566	.046	.94	-1.0	.94	-1.1	.58	21
22	1392	623	1.859	.043	.99	-.2	.99	-.2	.58	22

After analyzing each of the 200 series mini-forms a constant was added to the item parameters so that each of the samples would produce a mean theta equal to that found in form 201, i.e., .80. This is based on the assumption that each of the sample consisted of students with equal ability because the forms were spiraled. The output from those forms is provided in Appendix B. By fixing it so that each of the mini-forms 201 – 208 had mean ability measures of 0.80 all of these forms were on the same scale.

The complete forms were used to derive parameter estimates for the A1 and B1 test portions. Using the complete forms A and B (A=301+302 & B=303+304) it was possible to fix the parameters for A2, A3, and A4 and allow A1 to vary. This produced item parameters for A1 on the same scale as the other parts. This was repeated for Form B. When this was completed item parameters for A1, A2, A3, A4, B1, B2, B3, and B4 were all on the same scale. Using those parameter estimates it was then possible to equate mini-forms 101 – 108 using a common item equating design. In this design the item parameters for the common items were fixed to equal those found in the previous equatings, thus placing all item parameters for all mini-forms on the same scale.

The BIGSTEPS output for all forms can be found in Appendix B.

Principal Component Analysis of Mathematics A

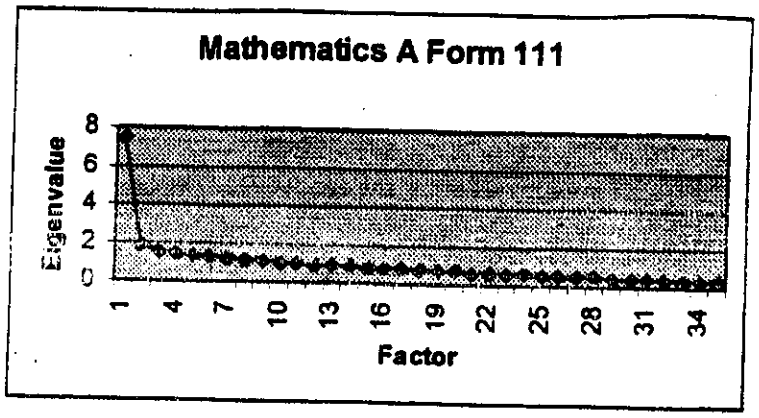
There were four complete forms used in the field test for mathematics. The first 20 items on the forms were multiple-choice items. Items 21 – 25 were two-point open-ended items; items 26 – 30 were three-point open-ended; and items 31 – 35 were four-point open-ended items. Each complete form was divided into three mini-forms. Each mini-form contained either 15 or 16 items taken from the complete forms as shown in the following table:

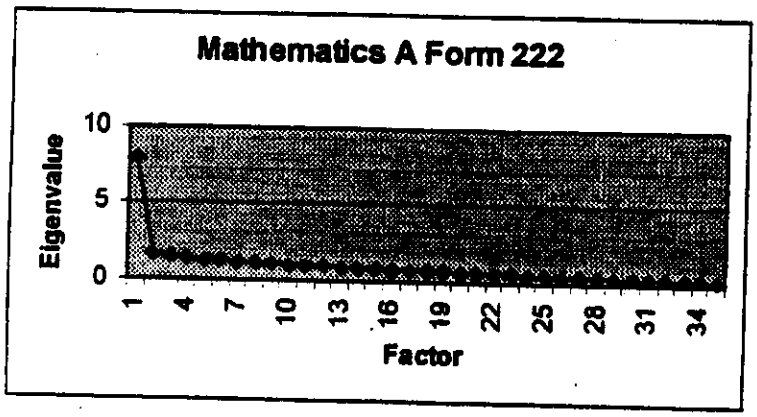
Mini-Form Item No.	111*			222*			333*			444*	
	101	105	109	202	206	210	303	307	311	404	408
1	1	3	7	1	2	4	2	3	4	2	3
2	2	2	2	3	3	3	1	1	1	1	1
3	6	5	4	7	6	5	8	7	6	7	5
4	14	14	14	10	10	10	5	5	5	8	8
5	8	9	10	8	9	11	9	10	11	10	11
6	11	12	13	14	13	12	14	13	12	12	13
7	15	16	17	15	16	17	15	16	17	17	15
8	20	19	18	20	19	18	20	19	18	19	20
9	21	21	21	21	21	21	21	21	21	22	22
10	23	24	25**	23	24	25	23	24	25	21	23
11	22	22	22	22	22	22	22	22	22	24	24
12	30	30	30	27	27	27	28	28	28	28	28
13	26	31	27	26	32	28	26	32	27	26	33
14	29	32	28	29	33	30	30	34	29	30	35
15	33	33	33	31	31	31	31	31	31	31	31
16	34		35	35		34	33		35	34	
N-count	780	778	794	772	772	782	774	778	787	779	789

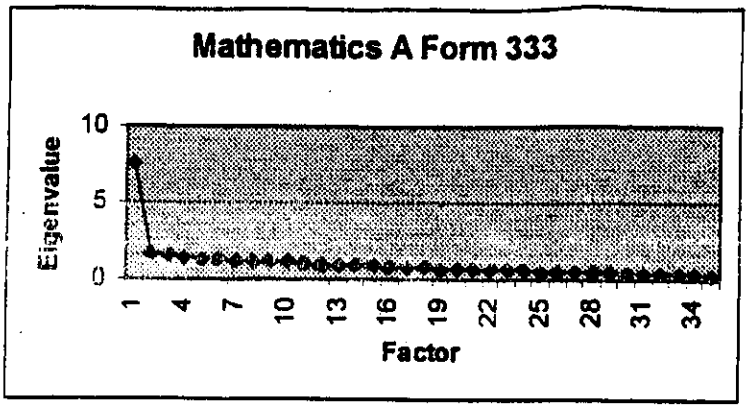
* N-count for complete forms are 111=249, 222=245, 333=242, and 444=243

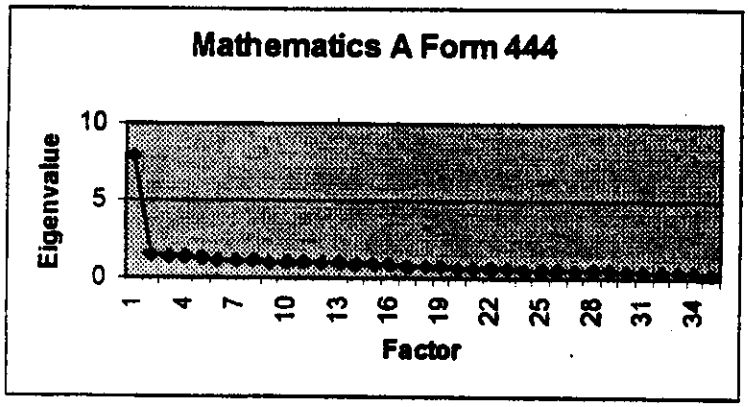
** Item 25 on Form 111 was dropped from the assessment.

To examine the dimensionality of the Mathematics A, a Principal Component analysis was done on the four intact forms 111, 222, 333, 444. The results from this analysis are presented in Appendix C. When examining the eigenvalues it appears that for all forms a dominant factor exists with several minor factors. The plot of these eigenvalues is presented below.


Mathematics A Form 111
Eigenvalue
8
6
4
2
0
1
4
7
10
13
16
19
22
25
28
31
34
Factor


Mathematics A Form 222
Eigenvalue
10
5
0
1
4
7
10
13
16
19
22
25
28
31
34
Factor


Mathematics A Form 333
Eigenvalue
10
5
0
1
4
7
10
13
16
19
22
25
28
31
34
Factor


Mathematics A Form 444
Eigenvalue
10
5
0
1
4
7
10
13
16
19
22
25
28
31
34
Factor

The percent of total variance explained by the first two factors is presented in the following chart.

Percent of Variance Explained by Factors 1 & 2 Mathematics				
	Form 111	Form 222	Form 333	Form 444
Factor 1	21.5%	22.5%	21.8%	22.9%
Factor 2	5.3%	4.7%	4.7%	4.3%

Contrasting the percent of variance explained by the first factor with the amount explained by the second factor indicates the presence of a strong first factor in each form. This supports the use of a Unidimensional Item Response Theory Model such as the Partial Credit Model. Further support for the use of the Partial Credit Model and the assumption of unidimensionality can be found in the next section of this report describing the equating of the Mathematics A. This support comes from the fit statistics at both the item and test level.

Equating Mathematics

The equating of the mathematics involved a common item equating design. Mini-forms 101, 105, and 109 were equated together using common items and fixing the item parameters for the common items to the values found in analyzing form 101. Mini-forms 202, 206, and 210—303, 307, and 311—404, 408, and 412 were also equated using common items.

To get the four sets of mini-forms onto one scale it was necessary to use the complete forms which were administered using a spiraled design. Fixing the item parameters for the complete forms to the values found in the mini-forms, it was possible to estimate the average theta value for the four samples administered the complete forms. Assuming equivalent groups an equating constant was determined for each of the forms (222, 333, and 444) which would produce an average theta equal to that found in form 111. This constant was then applied to the item parameters found in the appropriate mini-forms.

The BIGSTEPS output for this analysis can be found in Appendix D. The equated PCM item difficulties can be found in the item analysis tables presented in Appendix F.

Item Analysis English Language Arts

For each of the mini-forms in ELA an item analysis was performed. The analysis for form 101 is presented in the following table. The column "Item" lists the item position in the data file, not the test booklet. The open-ended items were always last in the data file, but in the booklet an open-ended item followed the multiple-choice portion of each part of the mini-forms. (refer to the table on page 1 for the layout of the mini-forms in ELA). The column headed "Key" indicates whether the item was a multiple-choice (M) or open-ended (O) item. The column "B" is the proportion of students leaving the item blank. For multiple-choice items the proportions in columns 1-4 are the proportion of students selecting the given answer choice. For open-ended

The BIGSTEPS output for this analysis can be found in Appendix B. The equated PCM item difficulties can be found in the item analysis tables presented in Appendix D.

Item Analysis English Language Arts

For each of the mini-forms in ELA an item analysis was performed. The analysis for form 101 is presented in the following table. The column "Item" lists the item position in the data file, not the test booklet. The open-ended items were always last in the data file, but in the booklet an open-ended item followed the multiple-choice portion of each part of the mini-forms. (refer to the table on page 1 for the layout of the mini-forms in ELA). The column headed "Key" indicates whether the item was a multiple-choice (M) or open-ended (O) item. The column "B" is the proportion of students leaving the item blank. For multiple-choice items the proportions in columns 1-4 are the proportion of students selecting the given answer choice. For open-ended items the proportions in columns 0-6 are the proportion of students receiving the various score points. The mean is the average score for students on a given item. The column headed "Cor." contains the point biserial for the multiple-choice items and the item-total for the open-ended items. Finally, Rasch is the Rasch item difficulty after equating. The tables for all ELA mini-forms can be found in Appendix C.

Item Statistics for ELA Form 101 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.03	.01	.88	.08	.00	.00	0.88	0.30	-1.824
2	M	.00	.00	.02	.78	.10	.10	.00	.00	0.78	0.26	-0.976
3	M	.00	.00	.91	.03	.01	.04	.00	.00	0.91	0.27	-2.268
4	M	.00	.00	.92	.02	.05	.01	.00	.00	0.92	0.28	-2.383
5	M	.00	.00	.07	.76	.12	.05	.00	.00	0.76	0.33	-0.860
6	M	.00	.00	.02	.03	.93	.03	.00	.00	0.93	0.29	-2.453
7	M	.01	.00	.03	.11	.77	.08	.00	.00	0.77	0.37	-1.010
8	M	.02	.00	.59	.09	.25	.05	.00	.00	0.59	0.25	-0.070
9	M	.02	.00	.03	.87	.07	.01	.00	.00	0.87	0.36	-1.499
10	M	.01	.00	.77	.15	.03	.03	.00	.00	0.77	0.42	-0.913
11	M	.02	.00	.06	.21	.03	.69	.00	.00	0.69	0.32	-0.355
12	M	.01	.00	.82	.06	.07	.03	.00	.00	0.82	0.42	-1.722
13	M	.02	.00	.11	.06	.03	.78	.00	.00	0.78	0.34	-0.843
14	M	.03	.00	.03	.07	.83	.04	.00	.00	0.83	0.43	-1.452
15	M	.03	.00	.06	.72	.04	.15	.00	.00	0.72	0.39	-0.427
16	M	.04	.00	.05	.88	.02	.02	.00	.00	0.88	0.39	-2.117
17	O	.00	.02	.08	.24	.35	.22	.09	.00	2.95	0.49	0.999
18	O	.00	.03	.21	.36	.27	.09	.02	.00	2.25	0.46	1.556

items the proportions in columns 0-6 are the proportion of students receiving the various score points. The mean is the average score for students on a given item. The column headed "Cor." contains the point biserial for the multiple-choice items and the item-total for the open-ended items. Finally, Rasch is the Rasch item difficulty after equating. The tables for all ELA mini-forms can be found in Appendix E.

Item Statistics for ELA Form 101 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.03	.01	.88	.08	.00	.00	0.88	0.30	-1.824
2	M	.00	.00	.02	.78	.10	.10	.00	.00	0.78	0.26	-0.976
3	M	.00	.00	.91	.03	.01	.04	.00	.00	0.91	0.27	-2.268
4	M	.00	.00	.92	.02	.05	.01	.00	.00	0.92	0.28	-2.383
5	M	.00	.00	.07	.76	.12	.05	.00	.00	0.76	0.33	-0.860
6	M	.00	.00	.02	.03	.93	.03	.00	.00	0.93	0.29	-2.453
7	M	.01	.00	.03	.11	.77	.08	.00	.00	0.77	0.37	-1.010
8	M	.02	.00	.59	.09	.25	.05	.00	.00	0.59	0.25	-0.070
9	M	.02	.00	.03	.87	.07	.01	.00	.00	0.87	0.36	-1.499
10	M	.01	.00	.77	.15	.03	.03	.00	.00	0.77	0.42	-0.913
11	M	.02	.00	.06	.21	.03	.69	.00	.00	0.69	0.32	-0.355
12	M	.01	.00	.82	.06	.07	.03	.00	.00	0.82	0.42	-1.722
13	M	.02	.00	.11	.06	.03	.78	.00	.00	0.78	0.34	-0.843
14	M	.03	.00	.03	.07	.83	.04	.00	.00	0.83	0.43	-1.452
15	M	.03	.00	.06	.72	.04	.15	.00	.00	0.72	0.39	-0.427
16	M	.04	.00	.05	.88	.02	.02	.00	.00	0.88	0.39	-2.117
17	O	.00	.02	.08	.24	.35	.22	.09	.00	2.95	0.49	0.999
18	O	.00	.03	.21	.36	.27	.09	.02	.00	2.25	0.46	1.556

Item Analysis for Mathematics

For each of the mini-forms in mathematics an item analysis was performed. The analysis for form 101 is presented in the following table. The column "Item" lists the item position in the data file, not the test booklet. The open-ended items were always last in the data file, but in the booklet an open-ended item followed the multiple-choice portion of each part of the mini-forms. (refer to the table on page 1 for the layout of the mini-forms in ELA). The column headed "Key" indicates whether the item was a multiple-choice (M) or open-ended (O) item. The column "B" is the proportion of students leaving the item blank. For multiple-choice items the proportions in columns 1-4 are the proportion of students selecting the given answer choice. For open-ended items the proportions in columns 0-6 are the proportion of students receiving the various score points. The mean is the average score for students on a given item. The column headed "Cor." contains the point biserial for the multiple-choice items and the item-total for the open-ended items. Finally, Rasch is the Rasch item difficulty after equating, i.e., they have the equating constant added to them as determined by comparison of the mean theta for the intact forms 111, 222, 333, and 444. The tables for all mathematics mini-forms can be found in Appendix F.

Item Statistics for Mathematics Form 101 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.01	.00	.00	.10	.04	.07	.78	0.78	0.35	-1.303
2	M	.01	.00	.00	.74	.06	.15	.04	0.74	0.45	-1.013
3	M	.00	.00	.00	.56	.25	.11	.09	0.56	0.42	0.005
4	M	.00	.00	.00	.13	.61	.11	.14	0.61	0.49	-0.266
5	M	.00	.00	.00	.02	.20	.74	.04	0.74	0.16	-0.997
6	M	.01	.00	.00	.12	.51	.27	.09	0.51	0.11	0.264
7	M	.00	.00	.00	.06	.17	.64	.13	0.64	0.32	-0.434
8	M	.00	.00	.00	.54	.24	.13	.09	0.54	0.33	0.117
9	O	.00	.35	.07	.18	.40	.00	.00	0.98	0.61	0.359
10	O	.00	.18	.07	.41	.34	.00	.00	1.09	0.61	0.066
11	O	.00	.40	.03	.16	.41	.00	.00	0.98	0.55	0.366
12	O	.00	.14	.07	.17	.14	.47	.00	1.87	0.52	-0.203
13	O	.00	.12	.06	.18	.22	.43	.00	1.92	0.64	-0.304
14	O	.00	.39	.22	.18	.09	.12	.00	0.71	0.59	1.486
15	O	.00	.23	.08	.33	.03	.10	.22	1.57	0.66	0.661
16	O	.00	.31	.25	.09	.04	.20	.11	1.22	0.65	1.196

Bias Analysis

For both the ELA and the mathematics mini-forms bias analysis was performed using a generalized Mantel-Haenzel. This statistical analysis compares students from different groups who performed in a similar manner on the total test and evaluates their performance on individual items. If the performance is not as expected in a statistical sense then the item is flagged at a .01 level of confidence. This analysis was performed comparing the performance of male with female students and White vs. African American students. Because of the sample size and the resulting numbers of other ethnic groups in the sample, no other comparisons were possible.

sample size and the resulting numbers of other ethnic groups in the sample, no other comparisons were possible.

In addition the Mantel-Haenzel analysis, the mean score on each item was also computed for male, female, White, and African American students. The results of these analyses for ELA can be found in Appendix E and for mathematics in Appendix F.

Frequency Distributions

Because all of the item and ability parameters for the various mini-forms were placed on the same scale, it was possible to estimate student performance in terms of their Rasch theta estimates. The distribution for ELA is presented in Appendix G and for mathematics in Appendix H.

Item Analysis of English Language Arts Item Pretest

The final analysis of this project dealt with an item tryout for ELA. The sample sizes were too small to do any equating or Bias analysis, but an item analysis was performed on each of the item tryout forms. These tables are in the same format as those described above for the item analysis of the field test for ELA. There are no Rasch difficulties because no equating was performed on these data. The tables are presented in Appendix I.

In addition the Mantel-Haenzel analysis, the mean score on each item was also computed for male, female, White, and African American students. The results of these analyses for ELA can be found in Appendix G and for mathematics in Appendix H.

Frequency Distributions

Because all of the item and ability parameters for the various mini-forms were placed on the same scale, it was possible to estimate student performance in terms of their Rasch theta estimates. The distribution for ELA is presented in Appendix I and for mathematics in Appendix J.

Item Analysis of English Language Arts Item Pretest

The final analysis of this project dealt with an item tryout for ELA. The sample sizes were too small to do any equating or Bias analysis, but an item analysis was performed on each of the item tryout forms. These tables are in the same format as those described above for the item analysis of the field test for ELA. There are no Rasch difficulties because no equating was performed on these data. The tables are presented in Appendix K.

ELA Form A

LATENT ROOTS (EIGENVALUES)

1	2	3	4	5
6.817	1.581	1.433	1.346	1.263
6	7	8	9	10
1.232	1.216	1.114	1.069	1.032
11	12	13	14	15
0.938	0.907	0.843	0.819	0.810
16	17	18	19	20
0.704	0.694	0.666	0.655	0.605
21	22	23	24	25
0.553	0.533	0.510	0.457	0.443
26	27	28	29	30
0.422	0.387	0.361	0.324	0.266

Appendix A

Principal Component Analysis for English Language Arts

COMPONENT LOADINGS

	1	2	3	4	5
ITEM(1)	0.378	0.344	0.039	0.297	0.256
ITEM(2)	0.323	0.231	0.058	0.345	0.052
ITEM(3)	0.404	0.088	-0.057	0.171	-0.268
ITEM(4)	0.234	0.337	-0.286	0.222	-0.227
ITEM(5)	0.392	0.189	-0.399	0.207	0.275
ITEM(6)	0.269	-0.089	-0.400	0.010	-0.356
ITEM(7)	0.538	0.222	0.214	-0.327	0.331
ITEM(8)	0.370	0.235	0.174	0.084	-0.191
ITEM(9)	0.592	0.380	-0.055	0.116	0.042
ITEM(10)	0.532	-0.215	0.028	-0.231	0.307
ITEM(11)	0.407	-0.281	-0.296	-0.281	0.284
ITEM(12)	0.653	0.139	-0.096	-0.317	0.019
ITEM(13)	0.520	0.122	0.017	-0.205	-0.232
ITEM(14)	0.617	0.165	-0.214	-0.101	0.040
ITEM(15)	0.423	0.099	0.235	0.042	-0.242
ITEM(16)	0.525	0.100	-0.120	-0.358	-0.101
ITEM(17)	0.459	0.082	0.172	-0.203	-0.334
ITEM(18)	0.414	-0.050	0.183	-0.073	-0.353
ITEM(19)	0.327	0.261	0.531	-0.063	0.064
ITEM(20)	0.505	-0.168	-0.032	-0.172	0.249
ITEM(21)	0.359	-0.084	0.422	0.350	0.187
ITEM(22)	0.409	-0.275	0.032	-0.128	-0.148
ITEM(23)	0.301	-0.229	0.001	0.305	0.125
ITEM(24)	0.413	-0.332	-0.051	-0.054	0.111
ITEM(25)	0.452	-0.388	0.136	0.041	0.078
ITEM(26)	0.360	-0.325	0.353	-0.001	-0.081
ITEM(27)	0.678	-0.092	-0.222	0.242	-0.019
ITEM(28)	0.645	-0.212	-0.063	0.162	-0.104
ITEM(29)	0.699	-0.230	-0.068	0.122	-0.073
ITEM(30)	0.607	-0.275	0.036	0.242	0.082

COMPONENT LOADINGS

	6	7	8	9	10
ITEM(1)	0.263	-0.187	0.028	0.145	0.073
ITEM(2)	-0.169	0.131	-0.587	-0.016	-0.098
ITEM(3)	0.505	0.089	-0.190	-0.153	0.192
ITEM(4)	0.012	0.264	0.059	0.167	-0.451
ITEM(5)	0.058	0.251	0.287	-0.200	0.025
ITEM(6)	-0.164	0.147	-0.141	0.465	-0.042
ITEM(7)	-0.027	0.108	-0.082	-0.007	-0.281
ITEM(8)	-0.343	0.255	0.199	-0.371	-0.030
ITEM(9)	0.022	0.036	-0.014	-0.025	0.246
ITEM(10)	-0.044	-0.177	-0.270	0.015	-0.021
ITEM(11)	-0.166	0.159	-0.257	0.143	0.062
ITEM(12)	-0.112	-0.136	0.098	-0.247	-0.166
ITEM(13)	-0.339	-0.292	0.087	0.082	0.133
ITEM(14)	-0.030	0.016	-0.029	-0.149	0.100
ITEM(15)	-0.354	-0.091	0.005	0.072	0.192
ITEM(16)	0.212	0.071	0.046	-0.157	0.114
ITEM(17)	0.119	0.263	0.152	0.294	0.138
ITEM(18)	0.292	-0.124	-0.287	-0.169	0.067
ITEM(19)	0.140	0.159	0.292	0.346	-0.034
ITEM(20)	0.046	-0.030	-0.046	0.304	0.203
ITEM(21)	0.037	-0.036	-0.111	0.124	0.035
ITEM(22)	0.302	-0.007	-0.149	-0.106	-0.117
ITEM(23)	-0.269	0.279	-0.003	-0.072	0.476
ITEM(24)	0.157	0.345	0.236	0.112	0.035
ITEM(25)	0.091	0.258	0.073	-0.246	-0.071
ITEM(26)	-0.219	0.272	-0.170	-0.086	-0.300
ITEM(27)	0.023	-0.092	-0.024	0.113	-0.239
ITEM(28)	-0.171	-0.341	0.186	-0.078	-0.014
ITEM(29)	0.031	-0.219	0.036	0.004	0.044
ITEM(30)	0.069	-0.358	0.259	0.057	-0.250

COMPONENT LOADINGS

	11	12	13	14	15
ITEM(1)	-0.126	-0.427	-0.074	-0.311	0.025
ITEM(2)	0.171	-0.005	0.027	-0.200	-0.245
ITEM(3)	0.004	0.012	-0.058	0.133	-0.186
ITEM(4)	-0.057	0.307	-0.219	-0.034	0.125
ITEM(5)	-0.117	0.026	0.066	0.091	0.088
ITEM(6)	0.038	-0.366	0.015	0.179	-0.039
ITEM(7)	0.139	-0.058	-0.038	0.087	0.152
ITEM(8)	-0.079	-0.296	0.049	0.235	-0.035
ITEM(9)	-0.013	-0.066	0.273	-0.045	-0.058
ITEM(10)	-0.208	0.005	-0.070	0.098	0.164
ITEM(11)	-0.163	-0.166	0.069	0.058	0.174
ITEM(12)	0.044	0.096	0.062	0.028	-0.122
ITEM(13)	-0.222	-0.107	0.046	-0.127	-0.100
ITEM(14)	0.220	0.178	-0.077	-0.103	0.020
ITEM(15)	0.249	-0.021	-0.546	0.010	0.133
ITEM(16)	0.080	0.100	-0.070	-0.057	-0.116
ITEM(17)	-0.145	0.144	0.270	0.009	0.059
ITEM(18)	0.181	-0.021	0.153	-0.087	0.455
ITEM(19)	-0.097	0.026	-0.056	-0.040	-0.096
ITEM(20)	0.161	0.267	-0.096	0.071	-0.343
ITEM(21)	0.034	0.110	0.113	0.507	0.135
ITEM(22)	-0.523	-0.040	-0.332	0.014	0.012
ITEM(23)	-0.273	0.262	-0.114	-0.178	0.170
ITEM(24)	0.379	-0.192	0.006	-0.219	0.203
ITEM(25)	0.086	-0.256	-0.208	0.118	-0.225
ITEM(26)	-0.113	0.094	0.239	-0.318	-0.120
ITEM(27)	-0.004	0.127	0.044	0.099	0.050
ITEM(28)	0.088	0.082	0.109	0.037	0.111
ITEM(29)	0.016	-0.025	0.137	0.072	-0.208
ITEM(30)	-0.020	-0.007	-0.025	-0.176	0.013

COMPONENT LOADINGS

	16	17	18	19	20
ITEM(1)	0.107	0.040	-0.070	-0.074	0.074
ITEM(2)	-0.240	0.032	0.048	-0.123	-0.096
ITEM(3)	0.279	-0.306	0.045	0.186	-0.008
ITEM(4)	0.224	0.075	0.142	-0.089	0.209
ITEM(5)	-0.220	-0.347	0.166	0.020	-0.023
ITEM(6)	-0.144	-0.069	-0.225	0.226	0.047
ITEM(7)	0.007	0.076	0.006	0.095	0.004
ITEM(8)	0.286	0.177	-0.105	-0.042	-0.087
ITEM(9)	0.091	0.202	0.136	-0.005	-0.014
ITEM(10)	0.102	-0.024	-0.082	0.356	-0.204
ITEM(11)	0.185	-0.022	0.099	-0.244	0.269
ITEM(12)	-0.138	-0.188	0.026	0.079	0.032
ITEM(13)	-0.105	-0.263	0.208	-0.170	0.030
ITEM(14)	-0.160	0.187	-0.039	-0.070	-0.035
ITEM(15)	0.057	-0.148	0.081	-0.035	-0.084
ITEM(16)	0.012	-0.046	-0.520	-0.266	0.113
ITEM(17)	-0.084	0.171	0.128	0.024	-0.191
ITEM(18)	-0.092	0.000	0.101	0.081	0.241
ITEM(19)	-0.194	-0.039	-0.081	0.069	0.215
ITEM(20)	0.234	0.066	0.165	0.061	0.019
ITEM(21)	-0.048	-0.170	-0.083	-0.300	0.004
ITEM(22)	-0.117	0.136	0.092	-0.189	-0.225
ITEM(23)	-0.064	0.057	-0.190	0.179	0.098
ITEM(24)	0.077	-0.106	0.056	-0.112	-0.322
ITEM(25)	-0.217	0.165	0.175	0.158	0.236
ITEM(26)	0.189	-0.235	-0.073	0.058	-0.006
ITEM(27)	-0.126	0.073	-0.165	0.017	-0.179
ITEM(28)	0.061	0.152	0.037	0.069	0.081
ITEM(29)	0.024	0.122	0.020	-0.084	0.016
ITEM(30)	0.084	-0.046	-0.098	0.077	0.011

COMPONENT LOADINGS

	21	22	23	24	25
ITEM(1)	-0.039	0.105	-0.249	-0.026	-0.111
ITEM(2)	0.048	0.197	0.119	-0.090	0.135
ITEM(3)	-0.227	0.052	0.061	0.040	0.047
ITEM(4)	0.030	-0.096	-0.061	0.023	0.175
ITEM(5)	0.083	0.150	0.061	-0.100	-0.119
ITEM(6)	0.021	-0.059	-0.007	-0.075	-0.018
ITEM(7)	-0.008	0.209	0.001	0.102	0.094
ITEM(8)	0.068	0.052	0.057	-0.240	-0.025
ITEM(9)	0.203	-0.316	0.110	0.260	-0.083
ITEM(10)	-0.036	-0.142	0.009	-0.030	0.169
ITEM(11)	-0.147	0.088	0.075	0.055	-0.098
ITEM(12)	0.053	0.036	-0.127	0.119	-0.052
ITEM(13)	0.031	-0.150	-0.039	-0.092	0.224
ITEM(14)	-0.433	-0.243	-0.099	-0.222	-0.127
ITEM(15)	0.012	0.085	-0.025	0.190	-0.189
ITEM(16)	0.162	0.052	-0.010	0.041	0.087
ITEM(17)	-0.077	0.257	-0.282	0.016	0.009
ITEM(18)	0.212	-0.007	0.031	-0.151	-0.053
ITEM(19)	-0.117	-0.056	0.355	-0.036	-0.061
ITEM(20)	0.269	0.036	-0.020	-0.262	-0.112
ITEM(21)	-0.023	-0.143	-0.162	-0.040	0.060
ITEM(22)	0.059	-0.024	0.139	-0.050	-0.073
ITEM(23)	0.051	0.043	-0.037	0.043	0.132
ITEM(24)	0.019	-0.118	0.116	0.004	0.182
ITEM(25)	0.031	-0.123	-0.196	0.071	0.081
ITEM(26)	-0.065	-0.105	-0.063	0.030	-0.199
ITEM(27)	0.113	-0.048	0.019	0.127	-0.221
ITEM(28)	-0.134	0.168	0.226	-0.042	0.013
ITEM(29)	-0.140	0.120	0.079	0.208	0.136
ITEM(30)	0.064	0.012	-0.076	-0.122	0.078

COMPONENT LOADINGS

	26	27	28	29	30
ITEM(1)	0.046	-0.016	0.129	0.003	0.130
ITEM(2)	-0.098	0.058	0.039	-0.044	-0.068
ITEM(3)	0.081	0.174	-0.036	0.018	-0.035
ITEM(4)	-0.018	-0.056	0.066	-0.001	0.037
ITEM(5)	-0.096	-0.156	-0.134	-0.018	0.050
ITEM(6)	0.116	-0.095	-0.013	-0.130	0.004
ITEM(7)	0.327	0.039	-0.237	-0.010	0.055
ITEM(8)	0.015	0.004	0.058	0.108	-0.063
ITEM(9)	0.021	0.007	-0.104	-0.167	-0.070
ITEM(10)	-0.284	-0.090	0.057	0.028	0.042
ITEM(11)	-0.118	0.113	0.027	0.038	-0.136
ITEM(12)	0.136	0.019	0.379	-0.086	-0.124
ITEM(13)	0.073	0.141	-0.106	0.125	0.099
ITEM(14)	0.070	-0.047	-0.068	0.008	-0.033
ITEM(15)	-0.107	-0.068	-0.057	-0.022	-0.039
ITEM(16)	-0.154	0.004	-0.086	-0.059	0.070
ITEM(17)	-0.147	0.049	-0.022	-0.038	-0.046
ITEM(18)	0.010	-0.093	0.027	0.105	-0.014
ITEM(19)	-0.044	0.011	0.081	0.064	-0.051
ITEM(20)	0.064	-0.041	0.029	0.026	0.056
ITEM(21)	0.041	-0.021	0.047	-0.100	0.019
ITEM(22)	0.122	-0.056	0.020	-0.128	0.004
ITEM(23)	0.184	0.028	0.057	0.030	-0.024
ITEM(24)	0.025	0.022	0.141	0.011	0.020
ITEM(25)	-0.165	0.088	-0.034	0.012	0.064
ITEM(26)	-0.015	-0.107	-0.062	-0.047	0.116
ITEM(27)	-0.010	0.250	-0.002	0.293	0.061
ITEM(28)	-0.072	0.134	0.058	-0.242	0.218
ITEM(29)	0.039	-0.384	0.009	0.197	-0.004
ITEM(30)	-0.042	0.034	-0.179	-0.077	-0.309

VARIANCE EXPLAINED BY COMPONENTS

1	2	3	4	5
6.817	1.581	1.433	1.346	1.263
6	7	8	9	10
1.232	1.216	1.114	1.069	1.032
11	12	13	14	15
0.938	0.907	0.843	0.819	0.810
16	17	18	19	20
0.704	0.694	0.666	0.655	0.605
21	22	23	24	25
0.553	0.533	0.510	0.457	0.443
26	27	28	29	30
0.422	0.387	0.361	0.324	0.266

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3	4	5
22.724	5.271	4.777	4.487	4.209
6	7	8	9	10
4.105	4.052	3.713	3.564	3.441
11	12	13	14	15
3.128	3.023	2.810	2.729	2.700
16	17	18	19	20
2.346	2.313	2.219	2.185	2.018
21	22	23	24	25
1.844	1.778	1.699	1.525	1.477
26	27	28	29	30
1.406	1.290	1.204	1.080	0.885

ELA Form B

LATENT ROOTS (EIGENVALUES)

1	2	3	4	5
7.011	1.962	1.553	1.328	1.221
6	7	8	9	10
1.142	1.052	1.025	1.000	0.943
11	12	13	14	15
0.927	0.895	0.850	0.825	0.766
16	17	18	19	20
0.695	0.676	0.648	0.621	0.594
21	22	23	24	25
0.582	0.560	0.517	0.488	0.466
26	27	28	29	30
0.430	0.353	0.319	0.295	0.257

COMPONENT LOADINGS

	1	2	3	4	5
ITEM(1)	0.377	0.276	-0.031	-0.119	-0.047
ITEM(2)	0.422	0.195	0.271	-0.311	0.168
ITEM(3)	0.331	0.350	0.034	0.249	0.525
ITEM(4)	0.484	0.107	0.044	-0.057	0.159
ITEM(5)	0.394	0.148	0.447	-0.371	0.312
ITEM(6)	0.407	0.374	0.157	0.249	0.215
ITEM(7)	0.391	-0.408	-0.132	-0.174	-0.181
ITEM(8)	0.517	0.142	0.041	0.072	-0.324
ITEM(9)	0.462	-0.373	-0.052	0.010	-0.003
ITEM(10)	0.417	-0.356	0.126	0.335	0.152
ITEM(11)	0.376	-0.442	0.100	0.202	0.104
ITEM(12)	0.447	-0.443	0.380	-0.019	0.086
ITEM(13)	0.668	-0.337	0.123	0.153	-0.027
ITEM(14)	0.300	-0.191	0.165	0.035	0.043
ITEM(15)	0.608	-0.148	0.193	-0.343	-0.163
ITEM(16)	0.291	-0.150	0.126	0.147	-0.160
ITEM(17)	0.522	0.171	0.150	-0.250	-0.103
ITEM(18)	0.283	0.186	-0.420	-0.030	-0.106
ITEM(19)	0.601	0.233	0.053	0.152	-0.161
ITEM(20)	0.518	0.296	0.147	0.203	-0.170
ITEM(21)	0.469	0.117	0.120	0.406	-0.274
ITEM(22)	0.399	0.197	-0.062	0.181	-0.393
ITEM(23)	0.407	0.261	-0.236	-0.283	-0.136
ITEM(24)	0.541	0.137	0.020	0.199	0.068
ITEM(25)	0.208	-0.137	-0.554	0.224	0.351
ITEM(26)	0.557	0.185	-0.125	0.118	0.086
ITEM(27)	0.699	0.095	-0.110	-0.159	0.128
ITEM(28)	0.620	-0.275	-0.349	-0.184	0.092
ITEM(29)	0.655	-0.181	-0.224	-0.112	-0.077
ITEM(30)	0.640	0.030	-0.399	-0.137	0.142

COMPONENT LOADINGS

	6	7	8	9	10
ITEM(1)	0.321	-0.281	-0.254	0.300	0.077
ITEM(2)	0.159	0.345	0.167	0.023	0.112
ITEM(3)	0.090	-0.079	-0.371	-0.022	0.184
ITEM(4)	0.241	0.089	0.103	-0.162	-0.251
ITEM(5)	0.108	-0.012	0.057	-0.109	0.042
ITEM(6)	-0.174	0.050	0.236	0.152	-0.369
ITEM(7)	0.201	0.182	-0.312	-0.126	0.053
ITEM(8)	-0.043	0.064	0.143	0.165	-0.008
ITEM(9)	0.274	-0.005	-0.156	-0.068	-0.368
ITEM(10)	-0.055	0.264	-0.006	0.070	0.116
ITEM(11)	0.188	-0.241	0.184	-0.356	0.009
ITEM(12)	-0.107	-0.032	-0.036	-0.114	0.061
ITEM(13)	-0.089	0.027	0.162	0.025	0.027
ITEM(14)	0.064	0.209	-0.017	0.513	0.367
ITEM(15)	-0.028	0.108	0.044	0.119	-0.142
ITEM(16)	0.310	-0.527	0.363	0.269	0.138
ITEM(17)	0.052	-0.167	-0.100	0.012	-0.089
ITEM(18)	0.375	0.355	0.278	0.101	-0.064
ITEM(19)	-0.044	0.162	0.008	-0.096	0.123
ITEM(20)	0.154	0.036	-0.105	-0.157	-0.229
ITEM(21)	-0.070	-0.052	-0.254	0.163	-0.232
ITEM(22)	0.075	0.163	-0.139	-0.326	0.324
ITEM(23)	-0.152	-0.184	0.296	-0.234	0.160
ITEM(24)	-0.410	0.015	0.196	-0.089	0.064
ITEM(25)	0.220	0.120	0.174	0.033	0.022
ITEM(26)	0.145	-0.214	0.007	-0.177	0.245
ITEM(27)	-0.160	-0.022	-0.173	-0.010	0.053
ITEM(28)	-0.173	-0.100	-0.051	0.041	-0.129
ITEM(29)	-0.309	-0.015	-0.035	0.064	0.075
ITEM(30)	-0.197	-0.146	-0.123	0.167	-0.074

COMPONENT LOADINGS

	11	12	13	14	15
ITEM(1)	0.255	-0.317	0.063	0.008	-0.150
ITEM(2)	0.271	0.105	0.153	-0.185	0.298
ITEM(3)	0.049	0.056	0.068	0.038	0.065
ITEM(4)	-0.509	-0.059	0.060	0.265	0.231
ITEM(5)	0.154	0.005	-0.296	0.084	-0.053
ITEM(6)	-0.038	-0.025	0.108	0.062	-0.297
ITEM(7)	-0.026	0.113	0.240	0.264	-0.268
ITEM(8)	0.129	-0.208	0.298	0.228	0.292
ITEM(9)	0.051	-0.194	-0.157	-0.365	0.044
ITEM(10)	0.013	0.119	-0.338	0.200	-0.100
ITEM(11)	-0.057	-0.215	0.074	-0.290	0.063
ITEM(12)	0.135	-0.009	0.151	0.171	-0.207
ITEM(13)	0.053	0.067	0.237	-0.073	0.103
ITEM(14)	-0.465	-0.279	-0.056	-0.162	-0.063
ITEM(15)	0.036	0.000	0.087	0.052	-0.083
ITEM(16)	0.056	0.206	-0.181	0.189	0.051
ITEM(17)	-0.287	0.518	-0.058	-0.100	0.024
ITEM(18)	0.124	0.094	-0.229	-0.125	-0.158
ITEM(19)	0.066	0.126	0.147	-0.265	-0.278
ITEM(20)	0.044	-0.233	-0.135	0.204	-0.010
ITEM(21)	-0.052	0.216	-0.002	-0.158	0.032
ITEM(22)	-0.002	-0.050	-0.232	0.122	0.170
ITEM(23)	-0.230	-0.164	0.027	-0.015	-0.266
ITEM(24)	0.109	-0.126	-0.163	-0.030	0.005
ITEM(25)	0.020	0.117	0.175	0.140	0.010
ITEM(26)	0.002	0.137	0.165	-0.097	-0.070
ITEM(27)	-0.192	-0.110	-0.088	-0.059	0.046
ITEM(28)	0.151	-0.033	-0.220	0.115	-0.018
ITEM(29)	0.069	0.107	-0.088	-0.070	0.198
ITEM(30)	0.030	-0.015	0.055	0.022	0.126

COMPONENT LOADINGS

	16	17	18	19	20
ITEM(1)	-0.311	0.023	0.053	0.096	-0.011
ITEM(2)	-0.014	0.079	0.003	0.158	-0.059
ITEM(3)	0.294	0.083	0.003	0.088	-0.085
ITEM(4)	-0.176	-0.096	-0.097	-0.090	-0.004
ITEM(5)	-0.047	-0.101	0.109	-0.257	0.244
ITEM(6)	0.151	0.207	-0.057	0.077	0.056
ITEM(7)	0.117	0.008	-0.255	-0.039	0.115
ITEM(8)	0.223	-0.134	0.110	-0.125	0.313
ITEM(9)	0.057	0.039	-0.148	0.096	0.146
ITEM(10)	0.020	-0.282	0.191	0.307	0.109
ITEM(11)	0.098	0.063	0.157	-0.015	0.059
ITEM(12)	-0.022	0.259	0.164	-0.297	-0.176
ITEM(13)	0.033	-0.049	-0.029	0.135	-0.201
ITEM(14)	0.061	0.046	-0.058	-0.113	-0.048
ITEM(15)	-0.094	0.036	0.021	0.237	-0.158
ITEM(16)	0.044	0.079	-0.172	0.060	0.039
ITEM(17)	0.029	0.140	-0.005	0.068	0.034
ITEM(18)	0.217	0.034	0.065	-0.260	-0.182
ITEM(19)	-0.133	-0.140	-0.112	0.031	0.264
ITEM(20)	-0.003	-0.167	-0.024	0.053	-0.322
ITEM(21)	-0.136	0.020	0.301	-0.200	0.018
ITEM(22)	0.008	0.391	0.021	0.082	0.046
ITEM(23)	0.077	-0.012	0.278	0.181	-0.014
ITEM(24)	-0.192	0.118	-0.419	-0.104	0.008
ITEM(25)	-0.383	0.170	0.144	0.020	0.096
ITEM(26)	0.033	-0.360	-0.124	-0.140	-0.140
ITEM(27)	-0.087	0.022	0.036	0.007	0.062
ITEM(28)	0.098	-0.023	-0.010	-0.013	0.026
ITEM(29)	-0.143	-0.134	0.030	-0.115	-0.161
ITEM(30)	0.224	0.074	0.010	-0.005	0.048

COMPONENT LOADINGS

	21	22	23	24	25
ITEM(1)	0.207	-0.257	-0.034	0.017	0.024
ITEM(2)	0.097	0.029	0.075	-0.237	-0.183
ITEM(3)	0.054	0.085	0.048	0.078	0.261
ITEM(4)	0.175	-0.127	-0.036	-0.064	0.150
ITEM(5)	-0.108	0.097	0.055	-0.061	0.091
ITEM(6)	-0.094	-0.134	-0.109	-0.192	-0.084
ITEM(7)	0.150	0.070	0.107	-0.172	-0.008
ITEM(8)	-0.074	-0.059	0.030	0.188	0.001
ITEM(9)	-0.194	0.067	0.217	0.047	0.057
ITEM(10)	0.089	-0.133	0.009	0.057	-0.015
ITEM(11)	0.144	-0.068	-0.265	-0.033	0.005
ITEM(12)	-0.004	0.007	-0.002	0.133	-0.070
ITEM(13)	0.129	-0.064	0.203	0.076	0.001
ITEM(14)	-0.121	0.048	-0.033	-0.090	-0.033
ITEM(15)	-0.297	-0.006	-0.108	0.125	0.282
ITEM(16)	0.042	0.206	0.021	-0.057	-0.010
ITEM(17)	0.012	-0.130	-0.071	0.214	-0.106
ITEM(18)	0.159	-0.074	0.001	0.164	0.071
ITEM(19)	0.096	0.191	-0.259	0.045	0.040
ITEM(20)	-0.039	0.316	-0.097	0.013	-0.198
ITEM(21)	0.039	0.024	0.223	-0.209	0.060
ITEM(22)	-0.166	-0.134	-0.066	-0.092	0.019
ITEM(23)	0.056	0.108	0.266	-0.096	0.092
ITEM(24)	0.102	-0.063	0.174	0.105	0.098
ITEM(25)	-0.205	0.153	0.027	0.054	-0.045
ITEM(26)	-0.360	-0.230	0.056	-0.053	-0.100
ITEM(27)	0.079	0.091	0.078	0.231	-0.318
ITEM(28)	-0.030	-0.213	-0.062	-0.171	-0.131
ITEM(29)	0.042	0.092	-0.199	-0.150	0.165
ITEM(30)	0.027	0.163	-0.128	-0.028	0.013

COMPONENT LOADINGS

	26	27	28	29	30
ITEM(1)	0.022	0.067	-0.001	-0.032	0.062
ITEM(2)	-0.079	-0.021	-0.080	0.121	0.024
ITEM(3)	-0.041	-0.018	0.113	0.099	-0.083
ITEM(4)	0.119	0.023	-0.109	0.070	-0.068
ITEM(5)	0.025	0.016	0.070	-0.216	0.001
ITEM(6)	0.146	-0.024	0.121	-0.010	0.106
ITEM(7)	-0.091	-0.094	0.086	-0.046	0.104
ITEM(8)	-0.078	0.044	0.087	0.077	0.025
ITEM(9)	0.127	0.145	-0.006	0.116	0.055
ITEM(10)	-0.008	0.012	-0.105	0.047	0.120
ITEM(11)	-0.192	-0.142	0.046	-0.058	0.058
ITEM(12)	0.101	0.122	-0.132	0.174	0.001
ITEM(13)	0.178	0.104	0.096	-0.297	-0.122
ITEM(14)	-0.101	0.078	0.017	-0.024	-0.030
ITEM(15)	-0.085	-0.248	-0.042	-0.004	-0.048
ITEM(16)	0.089	-0.090	-0.013	0.084	-0.034
ITEM(17)	-0.196	0.190	0.070	-0.022	0.068
ITEM(18)	0.030	-0.068	0.002	-0.006	0.008
ITEM(19)	0.094	0.075	-0.066	0.050	-0.179
ITEM(20)	-0.158	0.097	0.034	-0.049	0.004
ITEM(21)	-0.100	-0.138	-0.063	-0.010	-0.044
ITEM(22)	0.143	0.013	-0.015	-0.073	-0.014
ITEM(23)	-0.041	0.093	0.001	0.076	0.015
ITEM(24)	-0.244	-0.026	-0.054	0.004	0.065
ITEM(25)	-0.111	0.058	0.067	-0.040	0.004
ITEM(26)	0.037	-0.054	0.089	0.020	0.060
ITEM(27)	0.188	-0.307	0.088	0.036	-0.006
ITEM(28)	-0.136	0.045	0.056	0.068	-0.305
ITEM(29)	0.137	0.075	0.230	0.101	0.171
ITEM(30)	0.032	0.035	-0.343	-0.174	0.096

VARIANCE EXPLAINED BY COMPONENTS

1	2	3	4	5
7.011	1.962	1.553	1.328	1.221
6	7	8	9	10
1.142	1.052	1.025	1.000	0.943
11	12	13	14	15
0.927	0.895	0.850	0.825	0.766
16	17	18	19	20
0.695	0.676	0.648	0.621	0.594
21	22	23	24	25
0.582	0.560	0.517	0.488	0.466
26	27	28	29	30
0.430	0.353	0.319	0.295	0.257

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3	4	5
23.370	6.540	5.177	4.426	4.069
6	7	8	9	10
3.808	3.506	3.416	3.335	3.143
11	12	13	14	15
3.090	2.982	2.832	2.749	2.552
16	17	18	19	20
2.317	2.253	2.160	2.070	1.979
21	22	23	24	25
1.940	1.867	1.722	1.627	1.552
26	27	28	29	30
1.434	1.177	1.064	0.984	0.857

Appendix B

Partial Credit Model Analysis for English Language Arts

TABLE 3.1 ELA 101
Mar 11 10:26 1999 INPUT: 671 PERSONS 18 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 671 PERSONS 18 ITEMS 46 CATEGORIES

SUMMARY OF 671 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	18.1	18.0	.52	.58	.94	-.1	.95	.0
S.D.	4.1	.0	1.26	.13	.55	.9	1.03	.9

RMSE .59 ADJ.S.D. 1.11 PERSON SEP 1.88 PERSON SEP REL. .78

SUMMARY OF 18 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	675.6	671.0	-1.03	.10	.96	-.6	1.00	-.3
S.D.	390.6	.0	1.07	.03	.09	1.7	.25	1.4

RMSE .11 ADJ.S.D. 1.07 ITEM SEP 9.88 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 101
Mar 11 10:26 1999 INPUT: 671 PERSONS 18 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 671 PERSONS 18 ITEMS 46 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	586	671	-1.824	.122	.96	-.5	.99	.0	.30		1
2	624	671	-.976	.098	1.03	.6	1.13	1.0	.26		2
3	613	671	-2.268	.141	1.00	.1	1.48	1.7	.27		3
4	614	671	-2.383	.147	.92	-.7	1.63	1.9	.28		4
5	611	671	-.860	.096	.98	-.5	.92	-.6	.33		5
6	[illegible]	671	-2.453	.151	.93	-.6	.91	-.2	.29		6
[illegible]	[illegible]	671	-1.010A	.099	.96	-.8	.82	-1.3	.37		7
[illegible]	[illegible]	671	-.070A	.087	1.12	3.4	1.19	2.2	.25		8
[illegible]	[illegible]	671	-1.499A	.111	.77	-3.5	.63	-2.3	.36	-.290	9
[illegible]	[illegible]	671	-.913A	.097	.87	-2.7	.80	-1.6	.42		10
[illegible]	[illegible]	671	-.355A	.089	.99	-.1	.95	-.5	.32	-.109	11
[illegible]	[illegible]	671	-1.722A	.118	1.14	1.7	.85	-.7	.42	.287	12
[illegible]	[illegible]	671	-.843A	.096	.90	-2.0	.89	-.9	.34	-.197	13
[illegible]	[illegible]	671	-1.452A	.110	.87	-1.9	.91	-.5	.43		14
[illegible]	[illegible]	671	-.427A	.090	.89	-2.9	.78	-2.4	.39	-.191	15
[illegible]	[illegible]	671	-1.117A	.134	1.10	1.0	1.29	1.2	.39	.025	16
[illegible]	[illegible]	671	.999	.046	1.01	.2	1.00	.0	.49		17
[illegible]	[illegible]	671	1.556A	.045	.90	-1.9	.90	-1.9	.46	.093	18

TABLE 3.1 ELA 102 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 12 8:55 1999 INPUT: 666 PERSONS 8 ITEMS ANALYZED: 660 PERSONS 8 ITEMS 25 CATEGORIES

SUMMARY OF 660 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	10.9	8.0	1.66	.80	.92	-.2	1.03	.1
S.D.	2.7	.0	1.61	.15	.82	1.0	1.52	.9

RMSE .81 ADJ.S.D. 1.38 PERSON SEP 1.70 PERSON SEP REL. .74

MAXIMUM EXTREME SCORE: 5 PERSONS
MINIMUM EXTREME SCORE: 1 PERSONS

SUMMARY OF 8 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	899.0	660.0	-.13	.10	.99	-.1	1.16	.4
S.D.	633.9	.0	1.12	.03	.10	1.8	.33	2.3

RMSE .11 ADJ.S.D. 1.12 ITEM SEP 10.64 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 102 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 12 8:55 1999 INPUT: 666 PERSONS 8 ITEMS ANALYZED: 660 PERSONS 8 ITEMS 25 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	427	660	.691A	.090	1.16	3.5	1.73	4.9	.25	1
2	598	660	-1.309A	.136	1.01	.1	1.08	.3	.27	2
3	579	660	-.971A	.122	.97	-.3	1.62	1.8	.29	3
4	551	660	-.568A	.110	1.00	.1	.91	-.3	.32	4
5	554	660	-.608A	.111	1.08	1.2	1.32	1.3	.24	5
6	596	660	-1.270A	.134	.89	-1.1	.86	-.3	.36	6
7	2311	660	1.094A	.047	.83	-3.1	.83	-3.2	.52	7
8	1566	660	1.903	.050	.95	-1.0	.92	-1.5	.45	8

TABLE 3.1 ELA 103
Mar 12 8:58 1999 INPUT: 572 PERSONS 18 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 570 PERSONS 18 ITEMS 46 CATEGORIES

SUMMARY OF 570 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	18.9	18.0	1.66	.61	1.06	.1	1.01	.1
S.D.	4.4	.0	1.48	.16	.68	1.1	1.03	.9

RMSE .63 ADJ.S.D. 1.34 PERSON SEP 2.12 PERSON SEP REL. .82

MAXIMUM EXTREME SCORE: 1 PERSONS
MINIMUM EXTREME SCORE: 1 PERSONS

SUMMARY OF 18 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	597.7	570.0	-.13	.12	1.03	.6	1.07	.7
S.D.	414.9	.0	1.05	.03	.13	2.0	.38	2.0

RMSE .12 ADJ.S.D. 1.04 ITEM SEP 8.67 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 103
Mar 12 8:58 1999 INPUT: 572 PERSONS 18 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 570 PERSONS 18 ITEMS 46 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	373	570	.691A	.099	1.17	3.5	1.42	2.8	.27		1
2	511	570	-1.309A	.153	1.19	1.7	1.72	1.7	.24		2
3	512	570	-.971A	.138	.97	-.3	.88	-.3	.24	-.157	3
4	49[illegible]	570	-.568A	.124	.98	-.2	.73	-1.1	.30	-.135	4
5	469	570	-.608A	.125	1.26	3.2	1.44	1.6	.23	.167	5
6	518	570	-1.270A	.151	1.00	.1	.76	-.6	.34		6
7	416	570	.259	.105	1.11	2.1	1.27	1.5	.30		7
8	496	570	-.830	.133	.90	-1.1	.78	-.7	.42		8
9	465	570	-.359	.118	.94	-.9	.75	-1.1	.43		9
10	[illegible]	[illegible]	-1.536	.165	.86	-1.2	1.29	.8	.40		10
11	470	[illegible]	-.530	.123	.85	-2.1	.60	-1.8	.50		11
12	464	571	-.345	.117	.87	-2.0	.60	-1.9	.49		12
13	[illegible]	[illegible]	-.928	.136	.86	-1.6	.59	-1.4	.46		13
14	[illegible]	570	1.065	.096	1.08	1.9	1.16	1.4	.34		14
15	414	570	.281	.104	.94	-1.2	1.15	.9	.45		15
16	361	[illegible]	.833	.098	1.20	4.3	1.94	6.1	.24		16
17	1154	570	1.094A	.053	1.20	3.1	1.17	2.7	.55		17
18	1391	570	2.635	.050	1.09	1.5	1.09	1.4	.51		18

TABLE 3.1 ELA 104 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 10:29 1999 INPUT: 554 PERSONS 8 ITEMS ANALYZED: 552 PERSONS 8 ITEMS 26 CATEGORIES

SUMMARY OF 552 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	10.5	8.0	1.48	.73	.95	-.1	1.10	.1
S.D.	3.2	.0	1.70	.17	.82	1.0	1.43	1.0

RMSE .75 ADJ.S.D. 1.53 PERSON SEP 2.05 PERSON SEP REL. .81

MAXIMUM EXTREME SCORE: 1 PERSONS
MINIMUM EXTREME SCORE: 1 PERSONS

SUMMARY OF 8 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	725.1	552.0	.19	.10	1.01	.2	1.13	.2
S.D.	543.8	.0	1.12	.03	.10	1.9	.19	1.5

RMSE .10 ADJ.S.D. 1.11 ITEM SEP 10.82 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 104 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 10:29 1999 INPUT: 554 PERSONS 8 ITEMS ANALYZED: 552 PERSONS 8 ITEMS 26 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	459	552	-.739	.118	.96	-.5	1.08	.3	.33	1
2	499	552	-1.465	.146	1.07	.7	1.37	.8	.18	2
3	473	552	-.961	.125	1.04	.5	1.19	.6	.26	3
4	391	552	.122	.101	1.00	-.1	.97	.0	.38	4
5	349	552	.559	.097	1.13	2.8	1.31	1.7	.31	5
6	319	552	.748	.096	1.11	2.5	1.32	1.9	.32	6
7	1414	552	1.208	.049	.81	-3.4	.83	-3.0	.62	7
8	1489	552	2.071A	.048	.94	-1.1	.94	-.9	.54	8

TABLE 3.1 ELA 105
Mar 11 10:30 1999 INPUT: 614 PERSONS 18 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 614 PERSONS 18 ITEMS 46 CATEGORIES

SUMMARY OF 614 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	17.6	18.0	.64	.57	.98	.0	1.03	.1
S.D.	4.8	.0	1.43	.13	.56	1.0	.96	1.0

RMSE .59 ADJ.S.D. 1.31 PERSON SEP 2.23 PERSON SEP REL. .83

SUMMARY OF 18 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	599.7	614.0	-.78	.11	1.01	.2	1.06	.4
S.D.	378.2	.0	1.11	.03	.13	2.1	.28	1.7

RMSE .11 ADJ.S.D. 1.11 ITEM SEP 10.13 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 105
Mar 11 10:30 1999 INPUT: 614 PERSONS 18 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 614 PERSONS 18 ITEMS 46 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	565	614	-2.413	.155	1.00	.0	.82	-.4	.29		1
2	572	614	-1.301	.113	1.04	.7	1.31	1.5	.31		2
3	585	614	-2.137	.142	1.04	.4	1.70	2.0	.23		3
4	499	614	-1.122	.109	.92	-1.4	.66	-2.1	.45		4
5	531	614	-1.729	.126	.98	-.3	.98	.0	.34		5
6	441	614	-.518	.098	.92	-1.7	.84	-1.3	.44		6
	554	614	-2.026A	.137	.85	-1.7	.81	-.6	.37		7
	345	614	.242A	.092	1.03	.8	1.00	.0	.40		8
	447	614	-.524A	.098	.92	-1.8	.82	-1.4	.44	-.127	9
	[illegible]	614	-.782A	.102	.93	-1.4	.93	-.4	.39	-.176	10
	484	614	-1.136A	.109	.95	-.8	1.20	1.1	.36		11
	481	614	-1.149A	.109	1.10	1.6	1.63	3.0	.41	.216	12
	444	614	-1.188A	.110	.87	-2.2	.78	-1.2	.49		13
	[illegible]	614	.571A	.092	1.22	5.1	1.37	4.1	.27	-.393	14
	[illegible]	614	-1.838A	.129	1.39	4.1	1.02	.2	.41	.464	15
	[illegible]	614	.657A	.092	1.14	3.4	1.25	2.9	.33	-.229	16
	[illegible]	614	.794	.046	.95	-.9	.94	-1.0	.62		17
	[illegible]	614	1.642A	.050	1.03	.5	1.02	.3	.58	.156	18

TABLE 3.1 ELA 106 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 12 8:56 1999 INPUT: 630 PERSONS 8 ITEMS ANALYZED: 625 PERSONS 8 ITEMS 25 CATEGORIES

SUMMARY OF 625 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	10.1	8.0	.97	.74	.91	-.1	1.09	.1
S.D.	2.9	.0	1.48	.13	.68	1.0	1.36	1.0

RMSE .76 ADJ.S.D. 1.28 PERSON SEP 1.70 PERSON SEP REL. .74

MAXIMUM EXTREME SCORE: 3 PERSONS
MINIMUM EXTREME SCORE: 2 PERSONS

SUMMARY OF 8 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	785.6	625.0	-.21	.09	1.00	-.1	1.56	.4
S.D.	553.5	.0	.97	.03	.13	2.3	1.69	4.0

RMSE .09 ADJ.S.D. .97 ITEM SEP 10.22 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 106 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 12 8:56 1999 INPUT: 630 PERSONS 8 ITEMS ANALYZED: 625 PERSONS 8 ITEMS 25 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	428	625	-.112A	.093	1.08	1.6	1.10	.8	.31	1
2	464	625	-.470A	.098	.99	-.1	.92	-.5	.36	2
3	395	625	.184A	.090	1.09	2.0	1.07	.7	.30	3
4	527	625	-1.218A	.115	1.19	2.5	6.02	9.9	.10	4
5	553	625	-1.627A	.129	.97	-.3	.76	-.8	.32	5
6	489	625	-.740A	.103	1.01	.3	.99	.0	.33	6
7	1972	625	.800A	.045	.74	-5.2	.74	-5.2	.57	7
8	1457	625	1.517	.052	.90	-1.7	.90	-1.7	.51	8

TABLE 3.1 ELA 107 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 10:32 1999 INPUT: 646 PERSONS 18 ITEMS ANALYZED: 645 PERSONS 18 ITEMS 46 CATEGORIES

SUMMARY OF 645 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	16.9	18.0	1.14	.51	.94	-.1	.96	.0
S.D.	4.5	.0	1.10	.09	.45	.9	.58	.8

RMSE .52 ADJ.S.D. .97 PERSON SEP 1.88 PERSON SEP REL. .78

MINIMUM EXTREME SCORE: 1 PERSONS

SUMMARY OF 18 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	604.3	645.0	.16	.10	.97	-.3	.96	-.3
S.D.	457.4	.0	1.03	.03	.11	2.4	.17	2.2

RMSE .10 ADJ.S.D. 1.03 ITEM SEP 10.21 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 107 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 10:32 1999 INPUT: 646 PERSONS 18 ITEMS ANALYZED: 645 PERSONS 18 ITEMS 46 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	[illegible]	645	-2.512	.205	.93	-.4	.87	-.3	.24		1
[illegible]	[illegible]	645	1.139	.085	1.07	2.0	1.19	3.3	.25		2
3	[illegible]	645	1.764	.088	1.21	5.4	1.34	4.5	.12		3
4	[illegible]	645	-.962	.117	1.02	.3	.97	-.2	.25		4
[illegible]	[illegible]	645	-.168	.096	1.04	.7	1.00	.0	.26		5
[illegible]	[illegible]	645	.597	.087	1.02	.6	1.02	.4	.29		6
[illegible]	[illegible]	645	-.744A	.110	.87	-1.9	.78	-1.8	.34	-.146	7
[illegible]	[illegible]	645	-.502A	.104	.79	-3.8	.62	-3.8	.46	-.122	8
[illegible]	[illegible]	645	.715A	.086	1.11	3.1	1.16	2.6	.23		9
[illegible]	[illegible]	[illegible]	-.453A	.102	.84	-2.8	.73	-2.7	.44		10
[illegible]	[illegible]	[illegible]	.540A	.087	.93	-1.9	.91	-1.4	.39		11
[illegible]	[illegible]	[illegible]	.564A	.087	1.09	2.5	1.12	1.9	.26		12
[illegible]	[illegible]	[illegible]	.443A	.088	.99	-.3	1.00	.1	.35		13
[illegible]	[illegible]	[illegible]	-.462A	.103	1.02	.4	1.03	.3	.29		14
[illegible]	[illegible]	[illegible]	-.080A	.095	.83	-3.7	.80	-2.4	.42	-.157	15
[illegible]	[illegible]	[illegible]	-.062A	.094	.94	-1.2	1.01	.2	.39		16
[illegible]	[illegible]	[illegible]	1.006	.045	.85	-2.8	.84	-3.0	.58		17
[illegible]	[illegible]	[illegible]	2.032A	.042	.90	-2.0	.88	-2.2	.51	.075	18

TABLE 3.1 ELA 108 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 12 9:00 1999 INPUT: 632 PERSONS 18 ITEMS ANALYZED: 632 PERSONS 18 ITEMS 46 CATEGORIES

SUMMARY OF 632 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	17.7	18.0	.89	.55	1.01	.0	.99	.0
S.D.	4.9	.0	1.34	.10	.54	1.0	.69	.9

RMSE .56 ADJ.S.D. 1.22 PERSON SEP 2.16 PERSON SEP REL. .82

SUMMARY OF 18 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	622.4	632.0	-.43	.10	.99	.2	.99	.2
S.D.	433.5	.0	.96	.03	.13	2.2	.33	2.3

RMSE .11 ADJ.S.D. .96 ITEM SEP 9.10 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 108 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 12 9:00 1999 INPUT: 632 PERSONS 18 ITEMS ANALYZED: 632 PERSONS 18 ITEMS 46 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	414	632	-.112A	.095	1.12	2.5	1.14	1.5	.35	.126	1
2	487	632	-.470A	.101	.99	-.2	.93	-.5	.36	-.156	2
3	422	632	.184A	.092	1.17	3.8	1.38	4.1	.26		3
4	543	632	-1.218A	.118	1.04	.6	1.67	3.2	.21	-.154	4
5	558	632	-1.627A	.132	.90	-1.1	.75	-1.2	.41		5
6	491	632	-.740A	.106	1.19	3.0	1.41	2.8	.29		6
7	577	632	-2.042	.150	.81	-1.9	.64	-1.4	.47		7
8	406	632	.197	.092	1.05	1.1	1.19	2.2	.37		8
9	546	632	-1.442	.125	.78	-2.8	.49	-3.1	.55		9
10	555	632	-1.589	.131	.81	-2.3	.49	-2.9	.52		10
11	511	632	-.810	.108	.85	-2.5	.65	-2.8	.52		11
12	535	632	-1.270	.120	.85	-2.1	.64	-2.2	.50		12
13	299	632	1.038	.089	1.04	1.1	1.06	.8	.34		13
14	341	632	.370	.091	1.22	5.1	1.38	4.3	.24		14
15	468	632	-.438	.100	.98	-.4	.92	-.7	.42		15
16	406	632	.144	.093	.98	-.5	1.00	.1	.43		16
17	1946	632	.800A	.047	.94	-1.0	.95	-1.0	.63		17
18	1[illegible]	631	1.362	.046	1.06	1.0	1.05	.8	.55		18

TABLE 3.1 ELA 201 first run
Feb 1 5:42 1999 INPUT: 623 PERSONS 22 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 623 PERSONS 22 ITEMS 53 CATEGORIES

SUMMARY OF 623 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	18.1	22.0	.80	.47	.99	.0	.99	.0
S.D.	5.6	.0	1.18	.08	.39	.9	.45	.9

RMSE .48 ADJ.S.D. 1.08 PERSON SEP 2.27 PERSON SEP REL. .84

SUMMARY OF 22 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	511.3	623.0	.00	.09	1.00	.0	.99	.0
S.D.	332.4	.0	.91	.02	.13	2.8	.24	2.6

RMSE .09 ADJ.S.D. .90 ITEM SEP 9.62 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 201 first run
Feb 1 5:42 1999 INPUT: 623 PERSONS 22 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 623 PERSONS 22 ITEMS 53 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	401	623	.038	.090	1.17	4.1	1.29	3.7	.23	1
2	431	623	-.231	.093	1.16	3.4	1.17	1.9	.24	2
3	489	623	-.794	.102	1.05	.9	1.10	.8	.30	3
4	481	623	-.707	.101	1.17	3.0	1.45	3.5	.18	4
5	447	623	-.369	.095	1.08	1.8	1.25	2.5	.29	5
6	373	623	.824	.087	1.16	4.2	1.20	3.4	.24	6
7	391	623	.205	.088	1.04	1.0	1.01	.2	.35	7
8	515	623	-1.100	.110	1.08	1.2	1.05	.4	.26	8
9	554	623	-1.679	.130	.87	-1.4	.69	-1.6	.39	9
10	551	623	-1.644	.129	.86	-1.6	.60	-2.4	.42	10
11	341	623	.525	.087	.91	-2.4	.92	-1.4	.46	11
12	333	623	.598	.087	1.00	.0	.99	-.1	.39	12
13	407	623	-.563	.098	.80	-4.2	.68	-3.5	.55	13
14	411	623	-.055	.091	.84	-4.0	.75	-3.5	.53	14
15	473	623	-.644	.099	.78	-4.5	.63	-3.9	.56	15
16	261	623	1.149	.098	1.01	.3	1.07	1.2	.37	16
17	334	623	.580	.087	.94	-2.0	.82	-1.4	.44	17
18	449	623	-.378	.095	.83	-[illegible]	.75	-3.2	.52	18
19	216	623	1.530	.091	1.24	5.4	1.45	5.5	.17	19
20	369	623	.302	.088	.97	-.9	.95	-.7	.42	20
21	1654	623	.566	.046	.94	-1.9	.94	-1.1	.58	21
22	1361	623	1.859	.043	.99	-.2	.99	-.2	.58	22

TABLE 3.1 ELA 202 EQUATED R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 9:19 1999 INPUT: 602 PERSONS 12 ITEMS ANALYZED: 601 PERSONS 12 ITEMS 34 CATEGORIES

SUMMARY OF 601 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	11.5	12.0	.80	.63	.95	-.1	1.08	.1
S.D.	3.8	.0	1.49	.09	.62	1.0	1.26	1.0

RMSE .64 ADJ.S.D. 1.35 PERSON SEP 2.10 PERSON SEP REL. .82

MINIMUM EXTREME SCORE: 1 PERSONS

SUMMARY OF 12 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	577.1	601.0	-.03	.10	.99	-.1	1.17	.6
S.D.	382.9	.0	1.52	.03	.09	1.4	.56	2.6

RMSE .10 ADJ.S.D. 1.52 ITEM SEP 14.55 ITEM SEP REL. 1.00

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 202 EQUATED R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 9:19 1999 INPUT: 602 PERSONS 12 ITEMS ANALYZED: 601 PERSONS 12 ITEMS 34 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	478	601	-1.012A	.109	1.07	1.2	1.17	.8	.30	1
2	536	601	-1.904A	.137	.92	-.8	.88	-.3	.34	2
3	516	601	-1.717A	.130	.95	-.5	1.13	.5	.32	3
4	113	601	2.532A	.113	1.21	3.0	2.82	7.8	.17	4
5	356	601	.251A	.093	1.08	2.0	1.18	1.6	.35	5
6	443	601	-.606A	.102	.94	-1.1	1.69	3.5	.41	6
7	467	601	-.878A	.106	.92	-1.3	.73	-1.5	.43	7
8	471	601	-.914A	.107	1.02	.4	.91	-.4	.35	8
9	517	601	-1.408A	.120	.94	-.7	.72	-1.1	.38	9
10	234	601	1.314A	.094	.98	-.4	1.06	.7	.40	10
11	1411	601	1.910A	.049	.87	-2.3	.86	-2.4	.61	11
12	1171	601	2.071A	.046	.94	-1.1	.91	-1.6	.58	12

TABLE 3.1 ELA 203 EQUATED
Mar 11 9:21 1999 INPUT: 593 PERSONS 12 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 593 PERSONS 12 ITEMS 34 CATEGORIES

SUMMARY OF 593 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	12.9	12.0	.80	.64	.98	.0	.93	.0
S.D.	3.4	.0	1.38	.13	.67	1.0	.86	.9

RMSE .65 ADJ.S.D. 1.21 PERSON SEP 1.86 PERSON SEP REL. .78

SUMMARY OF 12 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	635.3	593.0	-.56	.10	.99	.1	.99	.1
S.D.	366.9	.0	1.22	.03	.09	1.5	.31	1.6

RMSE .11 ADJ.S.D. 1.22 ITEM SEP 11.40 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 203 EQUATED
Mar 11 9:21 1999 INPUT: 593 PERSONS 12 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 593 PERSONS 12 ITEMS 34 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	477	593	-1.010A	.109	1.03	.4	.90	-.5	.28	1
2	397	593	-.070A	.093	1.14	3.2	1.22	1.8	.23	2
3	522	593	-1.499A	.124	.93	-.8	.78	-.8	.33	3
4	480	593	-.913A	.107	.98	-.3	.88	-.6	.32	4
5	419	593	-.355A	.097	1.07	1.5	1.18	1.3	.27	5
6	528	593	-1.722A	.132	.87	-1.5	.57	-1.6	.39	6
7	483	593	-.843A	.105	1.00	.0	1.77	3.6	.30	7
8	[illegible]	593	-1.452A	.122	.81	-2.6	.52	-2.2	.47	8
9	424	593	-.427A	.098	1.08	1.7	1.09	.7	.26	9
10	544	593	-2.117A	.151	.97	-.2	1.03	.2	.27	10
11	1113	593	1.556A	.047	1.05	.9	1.05	.9	.44	11
12	[illegible]	593	1.133A	.046	.93	-1.3	.93	-1.3	.50	12

TABLE 3.1 ELA 204 EQUATED R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 10:53 1999 INPUT: 630 PERSONS 22 ITEMS ANALYZED: 630 PERSONS 22 ITEMS 54 CATEGORIES

SUMMARY OF 630 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	19.0	22.0	.80	.49	1.00	.0	1.00	.0
S.D.	5.6	.0	1.26	.10	.44	1.0	.66	1.0

RMSE .50 ADJ.S.D. 1.16 PERSON SEP 2.33 PERSON SEP REL. .84

SUMMARY OF 22 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	544.7	630.0	-.22	.10	1.00	.0	1.00	.1
S.D.	336.7	.0	1.03	.02	.12	2.7	.26	2.3

RMSE .10 ADJ.S.D. 1.03 ITEM SEP 10.42 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 204 EQUATED R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 10:53 1999 INPUT: 630 PERSONS 22 ITEMS ANALYZED: 630 PERSONS 22 ITEMS 54 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	353	630	.461A	.087	1.30	7.4	1.57	6.2	.14	1
2	555	630	-1.622A	.127	.96	-.5	.76	-1.0	.35	2
3	576	630	-2.026A	.145	.98	-.1	.82	-.5	.29	3
4	539	630	-1.371A	.118	1.11	1.4	1.24	1.1	.23	4
5	414	630	-.039A	.090	1.05	1.2	.99	-.1	.35	5
6	489	630	-.751A	.101	1.03	.6	.99	.0	.34	6
7	405	630	.038A	.090	1.11	2.6	1.09	.9	.30	7
8	523	630	-1.151A	.111	.98	-.3	.98	.0	.35	8
9	548	630	-1.507A	.123	1.04	.5	1.55	2.2	.25	9
10	485	630	-.708A	.101	1.03	.6	1.06	.4	.34	10
11	374	630	.294A	.088	.87	-3.5	.81	-2.3	.51	11
12	359	630	.413A	.087	.98	-.4	.99	-.1	.40	12
13	499	630	-.861A	.104	.80	-3.5	.62	-2.7	.54	13
14	445	630	-.314A	.094	.83	-3.8	.75	-2.3	.53	14
15	521	630	-1.125A	.111	.83	-2.6	.64	-2.2	.49	15
16	272	630	1.098A	.087	1.01	.4	1.06	.9	.37	16
17	355	630	.445A	.087	.99	-.3	.95	-.6	.41	17
18	475	630	-.604A	.099	.81	-3.7	.67	-2.7	.54	18
19	252	630	1.275A	.088	1.20	4.9	1.49	5.6	.23	19
20	410	630	-.005A	.090	.92	-2.0	.89	-1.1	.46	20
21	1668	630	1.321A	.046	1.09	1.6	1.08	1.5	.53	21
22	1469	630	1.899A	.041	.97	-.5	.96	-.7	.59	22

TABLE 3.1 ELA 205 EQUATED
Mar 11 9:28 1999 INPUT: 623 PERSONS 22 ITEMS ANALYZED: 623 PERSONS 22 ITEMS 54 CATEGORIES R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27

SUMMARY OF 623 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	18.6	22.0	.80	.48	.99	.0	.98	.0
S.D.	5.9	.0	1.25	.09	.41	.9	.47	.8

RMSE .49 ADJ.S.D. 1.15 PERSON SEP 2.35 PERSON SEP REL. .85

SUMMARY OF 22 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	527.9	623.0	-.12	.09	1.00	.0	.98	.0
S.D.	321.0	.0	.89	.02	.11	2.3	.19	2.1

RMSE .10 ADJ.S.D. .88 ITEM SEP 9.10 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 205 EQUATED
Mar 11 9:28 1999 INPUT: 623 PERSONS 22 ITEMS ANALYZED: 623 PERSONS 22 ITEMS 54 CATEGORIES R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT	PTBIS	NAME
1	812	623	-1.089A	.111	1.08	1.2	.98	-.1	.32	1
[illegible]	385	623	.345A	.088	1.09	2.3	1.14	2.0	.33	2
[illegible]	494	623	-.755A	.103	1.03	.5	1.04	.4	.35	3
[illegible]	[illegible]	623	.137A	.090	1.12	2.9	1.22	2.8	.30	4
[illegible]	[illegible]	623	-.252A	.094	1.06	1.2	1.02	.2	.36	5
[illegible]	[illegible]	623	-.365A	.096	1.01	.2	.92	-.8	.40	6
[illegible]	[illegible]	623	-.197A	.093	1.01	.1	.95	-.6	.40	7
[illegible]	[illegible]	623	-1.449A	.170	.87	-.9	.77	-.7	.35	8
[illegible]	[illegible]	623	-1.038A	.110	.97	-.4	.94	-.4	.38	9
[illegible]	[illegible]	[illegible]	-.242A	.094	1.25	5.0	1.53	5.1	.19	10
[illegible]	[illegible]	[illegible]	-.744A	.103	.82	-3.4	.65	-3.3	.54	11
[illegible]	[illegible]	[illegible]	-1.502A	.098	.81	-3.8	.67	-3.5	.56	12
[illegible]	[illegible]	[illegible]	.715A	.087	1.14	3.6	1.21	3.2	.30	13
[illegible]	[illegible]	[illegible]	-.453A	.097	.84	-3.3	.77	-2.4	.53	14
[illegible]	[illegible]	[illegible]	.540A	.088	.97	-.8	.97	-.4	.43	15
[illegible]	[illegible]	[illegible]	.564A	.087	1.09	2.4	1.16	2.4	.33	16
[illegible]	[illegible]	[illegible]	.443A	.088	.98	-.6	.98	-.4	.43	17
[illegible]	[illegible]	[illegible]	-.462A	.097	.92	-1.5	.94	-.6	.45	18
[illegible]	[illegible]	[illegible]	-.080A	.092	.92	-1.9	.83	-2.1	.47	19
[illegible]	[illegible]	[illegible]	-.062A	.092	.90	-2.3	.84	-2.0	.49	20
[illegible]	[illegible]	[illegible]	1.274A	.047	1.06	1.1	1.06	1.1	.56	21
[illegible]	[illegible]	[illegible]	2.032A	.043	.97	-.6	.95	-.8	.59	22

TABLE 3.1 ELA 206 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 9:30 1999 INPUT: 604 PERSONS 12 ITEMS ANALYZED: 603 PERSONS 12 ITEMS 34 CATEGORIES

SUMMARY OF 603 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	11.9	12.0	.80	.58	.93	-.1	1.04	.0
S.D.	3.6	.0	1.17	.10	.53	.9	.75	.9

RMSE .59 ADJ.S.D. 1.01 PERSON SEP 1.71 PERSON SEP REL. .75

MINIMUM EXTREME SCORE: 1 PERSONS

SUMMARY OF 12 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	596.2	603.0	.01	.09	1.00	.1	1.08	.5
S.D.	391.6	.0	1.04	.02	.11	2.2	.30	2.5

RMSE .09 ADJ.S.D. 1.04 ITEM SEP 11.01 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 206 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 9:30 1999 INPUT: 604 PERSONS 12 ITEMS ANALYZED: 603 PERSONS 12 ITEMS 34 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	484	603	-.885A	.107	1.21	3.1	1.53	3.5	.08	1
2	502	603	-1.114A	.114	.96	-.5	1.75	4.1	.29	2
3	506	603	-1.169A	.115	.97	-.3	.96	-.2	.29	3
4	311	603	.696A	.087	1.01	.4	1.07	1.2	.30	4
5	344	603	.424A	.088	1.04	1.1	1.06	.9	.28	5
6	378	603	.145A	.090	1.04	1.0	1.05	.7	.28	6
7	371	603	.195A	.089	1.00	.0	1.04	.6	.32	7
8	523	603	-1.424A	.124	.87	-1.5	.66	-2.1	.39	8
9	389	603	.311A	.088	1.17	4.7	1.29	4.0	.15	9
10	461	603	-.626A	.101	1.01	.2	.98	-.1	.29	10
11	1431	603	1.719A	.047	.81	-3.5	.80	-3.7	.56	11
12	1495	603	1.848A	.042	.84	-3.0	.82	-3.3	.52	12

TABLE 3.1 ELA 207
Mar 11 9:32 1999 INPUT: 602 PERSONS 12 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 601 PERSONS 12 ITEMS 34 CATEGORIES

SUMMARY OF 601 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	12.4	12.0	.80	.58	.93	-.1	1.01	.1
S.D.	3.6	.0	1.20	.09	.58	.9	.85	.9

RMSE .58 ADJ.S.D. 1.05 PERSON SEP 1.79 PERSON SEP REL. .76

MAXIMUM EXTREME SCORE: 1 PERSONS

SUMMARY OF 12 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	621.9	601.0	-.16	.09	1.00	.2	1.05	.4
S.D.	445.5	.0	1.08	.03	.15	3.2	.24	3.1

RMSE .10 ADJ.S.D. 1.07 ITEM SEP 10.86 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 207
Mar 11 9:32 1999 INPUT: 602 PERSONS 12 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 601 PERSONS 12 ITEMS 34 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	559	601	-2.210A	.160	.93	-.5	1.12	.5	.27	1
2	456	601	-.626A	.100	1.05	1.0	1.05	.4	.25	2
3	458	601	-.647A	.101	1.09	1.7	1.08	.7	.21	3
4	251	601	1.148A	.089	1.38	8.9	1.69	9.0	.01	4
5	363	601	.227A	.089	1.08	2.1	1.13	1.7	.26	5
6	486	601	-.963A	.108	.99	-.1	1.05	.4	.28	6
7	451	601	-.584A	.099	1.04	.8	1.23	1.8	.25	7
8	436	601	-.424A	.096	.94	-1.3	1.05	.5	.36	8
9	537	601	-1.236A	.116	.90	-1.4	.74	-1.6	.36	9
10	311	601	.731A	.088	.90	-3.0	.87	-2.2	.43	10
11	1649	601	1.068A	.044	.79	-3.8	.80	-3.8	.57	11
12	1576	601	1.595A	.043	.86	-2.6	.86	-2.6	.54	12

TABLE 3.1 ELA 208 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 9:33 1999 INPUT: 628 PERSONS 12 ITEMS ANALYZED: 628 PERSONS 12 ITEMS 34 CATEGORIES

SUMMARY OF 628 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	12.6	12.0	.80	.62	.95	.0	1.00	.1
S.D.	3.5	.0	1.31	.12	.57	.9	.84	.9

RMSE .63 ADJ.S.D. 1.14 PERSON SEP 1.82 PERSON SEP REL. .77

SUMMARY OF 12 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	661.3	628.0	-.32	.10	.98	.2	1.01	.4
S.D.	437.9	.0	1.21	.03	.10	2.1	.24	2.0

RMSE .10 ADJ.S.D. 1.20 ITEM SEP 11.85 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA 208 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 9:33 1999 INPUT: 628 PERSONS 12 ITEMS ANALYZED: 628 PERSONS 12 ITEMS 34 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	573	628	-2.026A	.146	.92	-.7	.64	-1.2	.34	1
2	377	628	.242A	.088	1.06	1.7	1.12	1.3	.29	2
3	464	628	-.524A	.097	1.03	.6	1.20	1.5	.29	3
4	469	628	-.782A	.102	1.05	.8	1.10	.7	.27	4
5	519	628	-1.136A	.111	.98	-.2	1.11	.6	.31	5
6	521	628	-1.149A	.111	.93	-1.1	1.05	.3	.37	6
7	523	628	-1.188A	.112	.91	-1.3	.86	-.7	.38	7
8	336	628	.571A	.087	1.21	5.6	1.38	4.4	.16	8
9	564	628	-1.838A	.137	.83	-1.8	.57	-1.8	.42	9
10	325	628	.657A	.087	1.09	2.6	1.30	3.6	.25	10
11	1567	628	1.642A	.048	.89	-2.1	.88	-2.2	.52	11
12	1679	628	1.691A	.042	.91	-1.7	.90	-1.8	.51	12

TABLE 3.1 ELA Form A first run — R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 10:05 1999 INPUT: 198 PERSONS 30 ITEMS ANALYZED: 198 PERSONS 30 ITEMS 78 CATEGORIES

SUMMARY OF 198 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	27.3	30.0	.55	.38	1.10	.3	1.15	.5
S.D.	8.4	.0	1.18	.07	.39	1.0	.57	1.1

RMSE .39 ADJ.S.D. 1.11 PERSON SEP 2.85 PERSON SEP REL. .89

SUMMARY OF 30 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	180.0	198.0	-.24	.17	1.11	.9	1.15	.8
S.D.	113.6	.0	1.04	.04	.21	1.8	.33	1.8

RMSE .17 ADJ.S.D. 1.03 ITEM SEP 6.02 ITEM SEP REL. .97

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA Form A first run — R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 10:05 1999 INPUT: 198 PERSONS 30 ITEMS ANALYZED: 198 PERSONS 30 ITEMS 78 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	99	198	.577	.157	1.06	.9	1.15	1.3	.33		1
2	137	198	-.448	.169	1.14	1.7	1.18	1.1	.27		2
3	113	198	.452	.157	1.07	1.1	1.09	.8	.34		3
4	165	198	-1.417	.205	1.12	1.0	1.57	1.8	.20		4
5	[illegible]	198	-1.645	.218	1.05	.4	.79	-.6	.34		5
6	144	198	-.659	.174	1.15	1.7	1.40	1.9	.24		6
7	[illegible]	198	-1.010A	.187	1.11	1.1	1.14	.7	.44	.302	7
8	[illegible]	198	-.070A	.162	1.17	2.4	1.37	2.4	.30	.226	8
9	[illegible]	198	-1.499A	.210	1.38	2.6	1.19	.7	.51	.604	9
10	[illegible]	198	-.913A	.183	1.15	1.5	1.14	.7	.45	.366	10
11	[illegible]	198	-.355A	.167	1.11	1.5	1.34	2.0	.34		11
12	[illegible]	[illegible]	-1.722A	.223	1.48	2.9	1.17	.6	.56	.711	12
13	[illegible]	[illegible]	-.843A	.180	.88	-1.3	.73	-1.3	.45		13
14	[illegible]	[illegible]	-1.452A	.207	1.25	1.8	1.01	.1	.53	.512	14
15	[illegible]	198	-.427A	.168	1.20	2.4	1.22	1.3	.37	.368	15
16	[illegible]	[illegible]	-2.117A	.251	1.71	3.4	2.08	2.1	.43	.724	16
17	[illegible]	198	-.744A	.177	.75	-2.9	.69	-1.6	.38	-.631	17
18	[illegible]	198	-.502A	.170	.94	-.7	.89	-.6	.35	-.290	18
19	[illegible]	198	.715A	.157	1.17	2.7	1.99	6.8	.26	-.336	19
20	157	198	-.453A	.169	.79	-2.8	.70	-1.9	.44	-.529	20
21	[illegible]	198	.540A	.157	1.07	1.1	1.15	1.3	.33		21
22	[illegible]	198	.564A	.157	1.06	1.0	1.10	.9	.36	-.378	22
23	99	198	.443A	.157	1.16	2.5	1.22	1.8	.27		23
24	155	198	-.462A	.169	.88	-1.5	.90	-.5	.36	-.462	24
25	153	198	-.080A	.162	.88	-1.8	.87	-.9	.41	-.709	25
26	152	198	-.062A	.162	.96	-.5	.96	-.2	.32	-.695	26
27	585	198	.645	.081	.96	-.4	.96	-.3	.64		27
28	441	198	1.556A	.084	1.16	1.6	1.14	1.4	.62	.151	28
29	430	198	2.032A	.078	.91	-.9	.90	-1.0	.66	-.225	29
30	363	198	2.071A	.082	1.60	5.2	1.57	4.7	.58	.270	30

TABLE 3.1 ELA Form B first run — R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 10:06 1999 INPUT: 198 PERSONS 30 ITEMS ANALYZED: 198 PERSONS 30 ITEMS 78 CATEGORIES

SUMMARY OF 198 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	28.1	30.0	.75	.39	1.09	.2	1.07	.3
S.D.	8.3	.0	1.18	.07	.45	1.1	.58	1.1

RMSE .39 ADJ.S.D. 1.12 PERSON SEP 2.86 PERSON SEP REL. .89

SUMMARY OF 30 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	185.8	198.0	-.08	.17	1.07	.5	1.07	.4
S.D.	131.6	.0	1.09	.04	.23	2.1	.37	2.0

RMSE .17 ADJ.S.D. 1.07 ITEM SEP 6.18 ITEM SEP REL. .97

SUMMARY OF MEASURED STEPS

TABLE 14.1 ELA Form B first run — R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 11 10:06 1999 INPUT: 198 PERSONS 30 ITEMS ANALYZED: 198 PERSONS 30 ITEMS 78 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	98	198	.782	.157	1.09	1.4	1.13	1.3	.33		1
2	162	198	-1.072	.196	1.00	.0	.85	-.5	.35		2
3	174	198	-1.624	.227	1.01	.1	.81	-.5	.29		3
4	152	198	-.706	.181	.95	-.5	.80	-1.0	.42		4
5	146	198	-.508	.175	1.06	.7	1.04	.3	.32		5
6	166	198	-1.239	.204	.99	.0	.98	.0	.33		6
7	176	198	-2.026A	.258	1.18	1.0	.89	-.1	.35		7
8	114	198	.242A	.160	.97	-.4	.95	-.4	.44		8
9	143	198	-.524A	.175	1.00	.0	.97	-.1	.41		9
10	148	198	-.782A	.184	1.11	1.1	1.03	.2	.35		10
11	161	198	-1.136A	.199	1.08	.7	1.02	.2	.32		11
12	148	198	-1.149A	.200	1.29	2.3	2.31	3.8	.37	.444	12
13	152	198	-1.188A	.202	1.01	.1	.78	-.8	.59	.369	13
14	117	198	.571A	.157	1.17	2.6	1.26	2.3	.25	-.242	14
15	151	198	-1.838A	.243	1.89	4.2	1.71	1.7	.54	.955	15
16	85	198	.657A	.157	1.19	3.0	1.29	2.6	.24	.332	16
17	119	198	.525A	.158	.94	-1.0	.88	-1.1	.45	-.247	17
18	101	198	.588A	.157	1.16	2.5	1.21	1.9	.26		18
19	157	198	-.563A	.176	.74	-3.2	.59	-2.5	.51	-.293	19
20	145	198	-.055A	.164	.87	-1.9	.81	-1.4	.43	-.372	20
21	171	198	-.644A	.179	.70	-3.5	.55	-2.7	.39	-.722	21
22	79	198	1.149A	.159	1.06	1.0	1.15	1.4	.33		22
23	113	198	.580A	.157	1.02	.3	1.41	3.5	.37	-.167	23
24	162	198	-.378A	.171	.71	-3.9	.58	-2.9	.48	-.602	24
25	88	198	1.530A	.165	1.34	4.2	1.76	4.8	.20	-.420	25
26	140	198	.302A	.159	.85	-2.4	.76	-2.2	.49	-.534	26
27	662	198	.771	.080	.96	-.4	1.00	.0	.65		27
28	413	198	1.642A	.089	1.47	4.2	1.46	4.1	.60	.320	28
29	507	198	1.859A	.078	1.00	.0	1.01	.1	.62	-.231	29
30	422	198	1.848A	.075	1.23	2.2	1.18	1.7	.62	.249	30

Appendix C

Principal Component Analysis for Mathematics A

Mathematics Form 111

LATENT ROOTS (EIGENVALUES)

1	2	3	4	5
7.511	1.842	1.536	1.455	1.346
6	7	8	9	10
1.338	1.267	1.138	1.111	1.061
11	12	13	14	15
0.984	0.959	0.936	0.892	0.854
16	17	18	19	20
0.827	0.783	0.724	0.713	0.670
21	22	23	24	25
0.639	0.613	0.608	0.570	0.561
26	27	28	29	30
0.522	0.483	0.472	0.436	0.432
31	32	33	34	35
0.395	0.375	0.331	0.323	0.291

COMPONENT LOADINGS

	1	2	3	4	5
ITEM(1)	0.399	0.389	0.050	0.257	0.366
ITEM(2)	0.407	0.143	-0.273	0.276	0.110
ITEM(3)	0.205	0.280	0.224	-0.146	-0.007
ITEM(4)	0.440	0.018	-0.168	-0.218	0.036
ITEM(5)	0.286	-0.382	-0.239	0.055	0.000
ITEM(6)	0.404	0.155	-0.340	0.082	-0.124
ITEM(7)	0.251	0.199	-0.288	-0.340	-0.227
ITEM(8)	0.120	0.284	-0.391	0.139	0.007
ITEM(9)	0.168	-0.455	0.109	0.013	0.313
ITEM(10)	0.271	-0.490	-0.062	0.020	0.297
ITEM(11)	0.136	-0.367	0.370	-0.297	0.166
ITEM(12)	0.578	0.080	0.160	-0.221	0.027
ITEM(13)	0.410	0.172	0.247	0.019	0.075
ITEM(14)	0.486	0.176	-0.092	-0.142	0.052
ITEM(15)	0.343	-0.026	-0.093	-0.077	-0.130
ITEM(16)	0.436	-0.171	-0.226	0.016	-0.090
ITEM(17)	0.384	-0.442	0.012	0.038	0.127
ITEM(18)	0.305	-0.009	0.088	-0.193	-0.370
ITEM(19)	0.053	-0.062	0.266	-0.150	0.516
ITEM(20)	0.362	-0.029	-0.371	-0.046	-0.023
ITEM(21)	0.678	0.045	0.062	0.055	0.000
ITEM(22)	0.552	0.070	-0.144	-0.373	0.149
ITEM(23)	0.609	-0.076	0.048	-0.222	-0.123
ITEM(24)	0.544	-0.153	0.195	0.219	0.022
ITEM(25)	0.153	0.212	0.477	0.281	-0.304
ITEM(26)	0.701	0.089	0.072	-0.259	-0.092
ITEM(27)	0.622	-0.266	0.043	-0.315	-0.070
ITEM(28)	0.471	0.232	-0.115	0.108	0.388
ITEM(29)	0.548	-0.162	0.230	0.152	-0.281
ITEM(30)	0.546	0.276	-0.037	0.172	0.181
ITEM(31)	0.502	0.209	-0.100	0.357	-0.112
ITEM(32)	0.741	0.023	-0.071	0.058	0.076
ITEM(33)	0.655	-0.095	0.194	-0.048	-0.079
ITEM(34)	0.622	-0.139	0.148	0.200	-0.070
ITEM(35)	0.564	-0.184	0.084	0.386	-0.167

COMPONENT LOADINGS

	6	7	8	9	10
ITEM(1)	0.078	-0.096	0.174	-0.063	0.079
ITEM(2)	0.067	-0.189	0.113	-0.384	-0.028
ITEM(3)	-0.031	-0.337	0.120	0.416	-0.422
ITEM(4)	-0.276	-0.207	0.100	-0.087	0.056
ITEM(5)	0.021	-0.369	-0.176	0.123	0.312
ITEM(6)	0.106	0.301	0.094	0.164	0.114
ITEM(7)	0.369	0.061	-0.023	0.212	-0.070
ITEM(8)	0.136	-0.131	-0.427	0.148	0.211
ITEM(9)	0.047	0.025	0.512	0.132	0.211
ITEM(10)	-0.247	0.026	-0.243	-0.117	-0.254
ITEM(11)	0.360	0.093	0.132	-0.248	0.093
ITEM(12)	-0.136	-0.081	-0.157	0.145	0.050
ITEM(13)	0.049	-0.050	-0.380	-0.349	-0.124
ITEM(14)	0.153	-0.227	0.127	-0.255	0.099
ITEM(15)	-0.086	0.487	-0.099	-0.249	-0.258
ITEM(16)	-0.145	0.261	0.001	-0.050	0.242
ITEM(17)	0.098	-0.194	0.072	-0.090	-0.368
ITEM(18)	-0.203	-0.291	0.161	-0.308	0.302
ITEM(19)	0.307	-0.018	-0.384	0.092	0.216
ITEM(20)	0.384	-0.209	0.043	-0.050	-0.182
ITEM(21)	-0.195	0.036	-0.173	-0.070	-0.036
ITEM(22)	-0.134	0.355	0.037	0.047	0.041
ITEM(23)	-0.214	-0.279	-0.080	0.115	0.086
ITEM(24)	0.061	0.062	0.064	0.080	0.088
ITEM(25)	-0.207	0.039	-0.091	-0.006	0.186
ITEM(26)	-0.173	-0.035	0.108	0.111	-0.118
ITEM(27)	0.233	0.121	0.017	-0.155	0.023
ITEM(28)	-0.175	0.148	0.170	0.078	0.129
ITEM(29)	0.342	0.019	0.053	-0.020	-0.060
ITEM(30)	-0.220	0.015	0.081	0.091	-0.137
ITEM(31)	0.017	-0.035	0.083	0.037	-0.128
ITEM(32)	-0.131	0.002	-0.143	0.017	-0.058
ITEM(33)	0.118	0.112	-0.053	0.144	0.097
ITEM(34)	0.134	0.111	-0.051	0.300	0.030
ITEM(35)	0.217	0.034	0.017	-0.041	-0.010

COMPONENT LOADINGS

	11	12	13	14	15
ITEM(1)	0.033	-0.124	0.288	-0.108	-0.111
ITEM(2)	0.047	0.298	0.069	0.133	-0.185
ITEM(3)	-0.311	-0.031	-0.055	0.198	0.071
ITEM(4)	0.386	-0.348	-0.133	-0.176	0.177
ITEM(5)	-0.432	0.016	-0.073	0.140	-0.146
ITEM(6)	0.082	-0.252	0.015	0.175	-0.290
ITEM(7)	0.062	0.293	0.136	-0.257	-0.097
ITEM(8)	0.117	0.135	-0.439	-0.060	0.116
ITEM(9)	-0.109	0.125	-0.146	0.028	0.091
ITEM(10)	0.119	0.108	0.067	-0.272	-0.075
ITEM(11)	0.115	-0.278	-0.193	0.046	-0.099
ITEM(12)	-0.012	0.270	0.060	0.009	-0.256
ITEM(13)	-0.274	-0.187	0.159	-0.067	-0.058
ITEM(14)	-0.012	-0.148	-0.284	0.121	0.146
ITEM(15)	-0.274	0.054	-0.298	0.119	0.242
ITEM(16)	0.005	0.130	0.379	0.290	0.155
ITEM(17)	0.277	0.179	-0.148	0.251	-0.107
ITEM(18)	-0.125	0.077	0.064	-0.209	0.006
ITEM(19)	0.028	-0.085	0.174	0.132	0.239
ITEM(20)	0.083	-0.039	0.261	0.173	0.331
ITEM(21)	-0.004	0.092	-0.104	0.081	-0.202
ITEM(22)	-0.014	0.032	0.052	0.065	0.029
ITEM(23)	0.125	0.022	0.065	0.089	0.033
ITEM(24)	-0.021	0.222	-0.070	-0.310	0.300
ITEM(25)	0.229	0.135	0.023	0.323	0.186
ITEM(26)	-0.021	-0.018	0.066	0.061	0.017
ITEM(27)	-0.112	-0.127	0.039	-0.041	-0.011
ITEM(28)	-0.226	-0.021	-0.132	-0.041	-0.064
ITEM(29)	0.036	-0.197	-0.014	-0.138	-0.112
ITEM(30)	0.109	-0.104	0.002	-0.022	0.011
ITEM(31)	-0.219	0.184	0.134	-0.226	0.262
ITEM(32)	0.039	-0.032	-0.037	-0.037	0.055
ITEM(33)	0.019	-0.203	-0.081	-0.110	-0.048
ITEM(34)	0.194	0.086	0.002	-0.058	-0.036
ITEM(35)	-0.036	-0.192	-0.094	0.103	-0.098

COMPONENT LOADINGS

	16	17	18	19	20
ITEM(1)	0.204	0.040	0.059	-0.004	0.134
ITEM(2)	0.084	0.024	-0.004	-0.082	-0.032
ITEM(3)	0.074	-0.054	0.262	0.069	-0.046
ITEM(4)	0.068	0.079	0.188	-0.236	0.151
ITEM(5)	0.047	-0.087	-0.145	-0.160	0.146
ITEM(6)	0.116	-0.345	0.159	-0.160	-0.064
ITEM(7)	0.070	0.341	0.017	-0.042	0.051
ITEM(8)	0.097	-0.042	0.207	0.276	0.049
ITEM(9)	0.261	0.053	0.103	0.014	0.179
ITEM(10)	0.107	-0.209	-0.009	0.252	-0.100
ITEM(11)	-0.072	-0.223	0.107	-0.082	-0.054
ITEM(12)	-0.076	-0.029	-0.170	-0.135	0.061
ITEM(13)	0.289	0.123	0.188	0.032	0.185
ITEM(14)	0.154	0.178	-0.295	0.124	-0.304
ITEM(15)	-0.067	0.037	0.083	-0.246	0.169
ITEM(16)	0.003	0.256	0.244	0.027	-0.213
ITEM(17)	-0.103	0.068	0.153	0.006	0.018
ITEM(18)	-0.343	-0.108	0.246	0.160	0.131
ITEM(19)	-0.251	0.022	0.114	-0.102	-0.101
ITEM(20)	-0.148	-0.173	-0.187	0.039	0.321
ITEM(21)	-0.060	0.186	-0.081	-0.083	0.080
ITEM(22)	0.125	-0.168	-0.036	0.291	0.111
ITEM(23)	0.030	-0.089	0.084	-0.115	-0.218
ITEM(24)	0.127	0.009	-0.032	-0.198	-0.053
ITEM(25)	0.182	-0.113	-0.162	0.119	0.167
ITEM(26)	0.109	0.114	-0.065	0.134	-0.047
ITEM(27)	0.026	-0.161	-0.128	0.152	-0.060
ITEM(28)	-0.318	0.041	0.021	0.122	-0.001
ITEM(29)	-0.045	-0.118	0.049	-0.034	-0.057
ITEM(30)	-0.327	0.064	-0.190	0.015	0.074
ITEM(31)	-0.029	-0.183	-0.014	-0.020	-0.213
ITEM(32)	0.046	-0.181	-0.021	-0.220	-0.135
ITEM(33)	-0.009	0.169	-0.178	-0.006	0.018
ITEM(34)	-0.065	0.021	0.067	0.086	0.182
ITEM(35)	-0.154	0.181	0.129	0.203	-0.088

COMPONENT LOADINGS

	21	22	23	24	25
ITEM(1)	0.029	0.093	0.208	-0.303	0.036
ITEM(2)	-0.059	0.276	-0.379	0.032	0.040
ITEM(3)	-0.126	0.118	-0.133	0.030	-0.081
ITEM(4)	-0.001	-0.001	-0.093	0.008	0.008
ITEM(5)	-0.171	0.053	0.015	0.041	-0.002
ITEM(6)	0.101	-0.188	-0.112	0.184	-0.060
ITEM(7)	0.074	0.042	-0.028	0.184	0.161
ITEM(8)	-0.017	0.067	0.138	-0.077	0.044
ITEM(9)	0.190	0.068	0.166	0.185	-0.030
ITEM(10)	0.031	0.086	-0.083	0.059	-0.134
ITEM(11)	-0.232	-0.058	0.100	0.006	-0.148
ITEM(12)	0.281	-0.112	0.037	-0.217	-0.175
ITEM(13)	-0.011	-0.196	0.012	0.139	-0.039
ITEM(14)	0.187	-0.025	-0.018	0.054	-0.218
ITEM(15)	0.138	0.188	0.009	-0.161	-0.050
ITEM(16)	-0.153	0.045	0.119	-0.041	-0.141
ITEM(17)	0.012	-0.238	0.110	0.022	0.191
ITEM(18)	0.088	-0.021	-0.053	0.111	-0.061
ITEM(19)	0.186	0.100	-0.129	0.165	0.078
ITEM(20)	-0.022	-0.140	0.014	-0.079	-0.063
ITEM(21)	-0.045	-0.046	0.205	0.176	0.062
ITEM(22)	-0.164	-0.007	-0.004	0.046	0.039
ITEM(23)	-0.080	0.055	0.143	-0.186	0.092
ITEM(24)	-0.286	-0.207	-0.204	-0.072	0.035
ITEM(25)	0.079	0.030	-0.082	0.109	0.202
ITEM(26)	0.126	-0.017	-0.123	-0.048	0.095
ITEM(27)	-0.060	0.096	0.029	-0.084	0.199
ITEM(28)	0.070	-0.123	-0.172	-0.129	0.278
ITEM(29)	0.055	0.344	0.123	-0.006	0.146
ITEM(30)	-0.219	0.190	0.172	0.263	-0.117
ITEM(31)	0.167	-0.126	0.189	0.137	0.008
ITEM(32)	0.080	0.006	0.031	0.065	0.055
ITEM(33)	-0.194	-0.053	-0.082	0.011	-0.050
ITEM(34)	0.110	0.101	-0.154	-0.082	-0.320
ITEM(35)	-0.011	-0.148	-0.045	-0.098	-0.054

COMPONENT LOADINGS

	26	27	28	29	30
ITEM(1)	0.152	-0.108	0.041	-0.102	-0.060
ITEM(2)	-0.186	0.013	0.087	0.068	-0.069
ITEM(3)	0.077	-0.029	-0.024	0.041	0.110
ITEM(4)	-0.116	0.055	-0.165	0.159	0.056
ITEM(5)	0.033	0.018	-0.117	-0.025	-0.014
ITEM(6)	0.108	-0.014	0.086	-0.027	0.009
ITEM(7)	0.193	0.167	-0.026	-0.046	-0.011
ITEM(8)	-0.102	-0.079	0.077	-0.025	0.065
ITEM(9)	-0.031	0.067	0.106	0.038	-0.019
ITEM(10)	0.265	0.028	0.064	0.115	0.071
ITEM(11)	0.049	-0.009	-0.021	0.062	0.001
ITEM(12)	-0.191	0.113	-0.077	0.074	0.178
ITEM(13)	-0.082	0.169	0.027	-0.052	0.059
ITEM(14)	0.153	0.039	-0.065	-0.040	0.062
ITEM(15)	0.091	0.043	0.099	-0.024	-0.070
ITEM(16)	-0.006	-0.049	-0.032	0.008	0.251
ITEM(17)	-0.091	-0.006	0.045	-0.152	0.080
ITEM(18)	0.086	-0.099	0.087	-0.112	-0.012
ITEM(19)	-0.023	-0.059	-0.001	0.032	-0.105
ITEM(20)	0.122	-0.041	0.054	0.123	0.047
ITEM(21)	0.181	-0.307	-0.093	0.222	-0.113
ITEM(22)	-0.157	0.056	-0.175	0.096	-0.150
ITEM(23)	0.125	0.272	0.192	0.058	-0.250
ITEM(24)	0.087	-0.054	-0.125	-0.070	0.019
ITEM(25)	0.121	0.119	0.000	0.003	0.087
ITEM(26)	-0.107	-0.310	0.015	-0.060	-0.124
ITEM(27)	-0.106	0.014	-0.042	-0.189	0.036
ITEM(28)	0.135	0.120	0.011	0.074	0.175
ITEM(29)	-0.012	-0.028	-0.133	0.173	0.204
ITEM(30)	-0.062	0.169	0.003	-0.189	0.007
ITEM(31)	-0.226	0.020	0.034	0.150	-0.079
ITEM(32)	0.029	-0.094	-0.038	-0.275	0.040
ITEM(33)	-0.116	-0.069	0.464	0.110	0.088
ITEM(34)	-0.009	-0.015	-0.071	-0.133	-0.098
ITEM(35)	0.014	0.151	-0.152	0.071	-0.228

COMPONENT LOADINGS

	31	32	33	34	35
ITEM(1)	-0.014	0.169	0.085	-0.065	-0.073
ITEM(2)	-0.059	-0.068	-0.025	-0.014	-0.031
ITEM(3)	-0.069	-0.007	0.041	-0.018	-0.129
ITEM(4)	0.074	0.053	0.085	0.108	-0.080
ITEM(5)	0.177	0.165	0.091	0.038	0.053
ITEM(6)	-0.124	0.119	-0.071	0.044	0.012
ITEM(7)	0.033	0.032	0.099	0.002	-0.013
ITEM(8)	-0.112	-0.014	-0.013	0.039	0.036
ITEM(9)	-0.103	-0.144	0.010	0.044	0.038
ITEM(10)	-0.005	0.081	0.105	0.081	0.031
ITEM(11)	0.149	-0.017	0.106	0.132	0.078
ITEM(12)	-0.214	0.015	0.051	-0.016	-0.004
ITEM(13)	0.039	-0.082	-0.133	0.025	0.090
ITEM(14)	0.031	0.077	-0.090	-0.099	-0.028
ITEM(15)	-0.018	0.127	0.036	-0.010	0.008
ITEM(16)	0.035	-0.007	0.017	0.042	0.004
ITEM(17)	0.076	0.185	-0.040	-0.108	-0.024
ITEM(18)	-0.071	0.046	0.013	-0.113	-0.024
ITEM(19)	-0.070	0.098	0.011	-0.028	-0.014
ITEM(20)	-0.046	-0.139	-0.014	0.019	0.060
ITEM(21)	-0.065	-0.104	-0.117	0.034	-0.151
ITEM(22)	0.030	0.045	0.003	-0.291	-0.011
ITEM(23)	0.005	-0.073	-0.160	-0.004	0.053
ITEM(24)	-0.209	0.070	-0.110	-0.045	0.050
ITEM(25)	0.035	0.068	0.095	0.041	-0.040
ITEM(26)	0.037	0.063	0.027	0.174	0.293
ITEM(27)	-0.097	-0.028	-0.046	0.241	-0.245
ITEM(28)	0.150	-0.084	-0.083	0.047	0.027
ITEM(29)	0.008	0.007	-0.092	-0.128	0.166
ITEM(30)	-0.134	0.074	-0.024	0.077	0.098
ITEM(31)	0.151	0.112	0.020	0.060	-0.094
ITEM(32)	0.090	-0.332	0.208	-0.144	0.007
ITEM(33)	0.063	0.021	0.115	-0.094	-0.067
ITEM(34)	0.262	-0.050	-0.191	0.033	-0.087
ITEM(35)	-0.125	-0.064	0.253	0.033	0.021

VARIANCE EXPLAINED BY COMPONENTS

1	2	3	4	5
7.511	1.842	1.536	1.455	1.346
6	7	8	9	10
1.338	1.267	1.138	1.111	1.061
11	12	13	14	15
0.984	0.959	0.936	0.892	0.854
16	17	18	19	20
0.827	0.783	0.724	0.713	0.670
21	22	23	24	25
0.639	0.613	0.608	0.570	0.561
26	27	28	29	30
0.522	0.483	0.472	0.436	0.432
31	32	33	34	35
0.395	0.375	0.331	0.323	0.291

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3	4	5
21.461	5.262	4.389	4.156	3.846
6	7	8	9	10
3.822	3.621	3.252	3.176	3.032
11	12	13	14	15
2.811	2.741	2.674	2.550	2.441
16	17	18	19	20
2.362	2.238	2.068	2.037	1.915
21	22	23	24	25
1.827	1.752	1.736	1.629	1.603
26	27	28	29	30
1.492	1.379	1.347	1.247	1.235
31	32	33	34	35
1.127	1.071	0.947	0.924	0.831

Mathematics Form 222

LATENT ROOTS (EIGENVALUES)

1	2	3	4	5
7.891	1.646	1.571	1.430	1.312
6	7	8	9	10
1.253	1.189	1.149	1.105	1.038
11	12	13	14	15
0.999	0.965	0.945	0.889	0.852
16	17	18	19	20
0.817	0.799	0.775	0.717	0.698
21	22	23	24	25
0.667	0.616	0.584	0.558	0.526
26	27	28	29	30
0.492	0.477	0.455	0.431	0.416
31	32	33	34	35
0.403	0.367	0.351	0.338	0.280

COMPONENT LOADINGS

	1	2	3	4	5
ITEM(1)	0.249	0.528	-0.295	0.057	0.042
ITEM(2)	0.271	-0.239	-0.003	0.067	0.200
ITEM(3)	0.373	0.248	0.259	0.016	-0.226
ITEM(4)	0.381	-0.024	-0.284	-0.024	0.352
ITEM(5)	0.257	-0.288	0.146	-0.419	0.023
ITEM(6)	0.511	0.123	0.019	0.262	0.090
ITEM(7)	0.486	-0.420	-0.052	0.117	-0.268
ITEM(8)	-0.020	-0.252	-0.142	-0.163	0.362
ITEM(9)	0.473	-0.151	0.007	0.362	-0.019
ITEM(10)	0.390	0.215	-0.286	0.013	0.056
ITEM(11)	0.215	-0.079	-0.542	-0.035	0.072
ITEM(12)	0.443	0.054	0.245	0.248	0.395
ITEM(13)	0.208	0.216	0.243	-0.103	-0.480
ITEM(14)	0.352	0.191	-0.375	-0.336	0.158
ITEM(15)	0.383	0.303	-0.060	-0.110	-0.216
ITEM(16)	0.428	0.337	0.218	0.067	0.341
ITEM(17)	0.557	-0.057	-0.241	-0.033	-0.293
ITEM(18)	0.462	-0.015	-0.142	0.079	-0.071
ITEM(19)	0.170	-0.040	0.181	-0.453	0.181
ITEM(20)	0.522	-0.112	-0.168	0.018	0.141
ITEM(21)	0.353	-0.107	0.337	-0.045	0.202
ITEM(22)	0.748	-0.054	0.031	0.004	-0.068
ITEM(23)	0.352	-0.498	0.201	-0.102	-0.041
ITEM(24)	0.563	-0.308	-0.049	0.331	-0.024
ITEM(25)	0.467	0.228	0.360	0.187	0.097
ITEM(26)	0.636	0.143	-0.096	-0.089	-0.088
ITEM(27)	0.496	0.017	0.060	-0.563	0.035
ITEM(28)	0.510	0.017	0.050	-0.065	-0.155
ITEM(29)	0.473	0.144	0.168	0.025	0.147
ITEM(30)	0.646	0.009	0.146	-0.021	0.116
ITEM(31)	0.580	0.024	0.137	-0.303	-0.084
ITEM(32)	0.634	-0.256	-0.078	0.073	-0.111
ITEM(33)	0.696	0.081	0.170	0.039	-0.009
ITEM(34)	0.640	-0.027	-0.157	0.060	-0.046
ITEM(35)	0.662	0.030	-0.189	0.029	-0.107

COMPONENT LOADINGS

	6	7	8	9	10
ITEM(1)	-0.147	0.034	-0.028	0.156	0.232
ITEM(2)	-0.282	-0.461	0.367	0.016	-0.037
ITEM(3)	0.209	0.201	0.147	-0.141	-0.161
ITEM(4)	0.080	-0.237	-0.062	0.265	0.018
ITEM(5)	0.289	0.051	-0.119	0.056	-0.134
ITEM(6)	0.121	-0.109	-0.075	-0.246	-0.134
ITEM(7)	-0.047	0.130	-0.144	-0.105	0.036
ITEM(8)	0.079	0.418	0.078	0.111	0.352
ITEM(9)	0.198	-0.033	-0.104	0.226	0.198
ITEM(10)	0.316	-0.105	-0.194	-0.227	-0.106
ITEM(11)	0.196	0.038	0.288	-0.280	0.100
ITEM(12)	0.230	-0.115	-0.087	-0.193	0.228
ITEM(13)	0.422	-0.047	0.233	0.315	0.009
ITEM(14)	-0.041	0.092	-0.119	0.331	-0.283
ITEM(15)	-0.255	0.311	-0.045	-0.244	0.230
ITEM(16)	-0.063	0.390	0.041	-0.093	-0.174
ITEM(17)	-0.205	-0.008	0.101	-0.206	0.013
ITEM(18)	0.175	-0.297	-0.259	-0.223	0.086
ITEM(19)	0.085	-0.098	0.145	-0.427	-0.044
ITEM(20)	0.195	0.178	0.344	0.016	-0.308
ITEM(21)	-0.197	0.040	-0.358	0.033	-0.112
ITEM(22)	0.029	-0.042	-0.218	0.041	-0.046
ITEM(23)	-0.042	0.142	0.187	-0.099	0.221
ITEM(24)	0.023	0.199	0.020	0.149	-0.311
ITEM(25)	0.060	-0.221	0.324	0.064	-0.044
ITEM(26)	0.005	0.003	0.166	-0.032	0.160
ITEM(27)	0.081	-0.144	0.029	0.098	-0.019
ITEM(28)	-0.312	-0.190	0.117	0.092	0.023
ITEM(29)	-0.424	0.079	0.113	-0.035	-0.160
ITEM(30)	-0.002	0.038	0.031	0.120	0.326
ITEM(31)	-0.144	-0.204	-0.259	0.022	0.102
ITEM(32)	-0.136	0.090	-0.099	0.011	-0.164
ITEM(33)	0.137	0.173	-0.088	0.137	0.182
ITEM(34)	-0.079	-0.025	0.209	0.181	0.112
ITEM(35)	-0.055	-0.005	-0.122	-0.083	-0.108

COMPONENT LOADINGS

	11	12	13	14	15
ITEM(1)	0.028	0.156	0.013	0.179	0.474
ITEM(2)	0.071	0.159	0.259	-0.210	0.217
ITEM(3)	-0.152	0.325	0.055	-0.304	0.136
ITEM(4)	-0.350	-0.162	0.071	-0.218	0.198
ITEM(5)	0.178	-0.437	0.298	0.048	0.147
ITEM(6)	0.083	-0.050	0.321	0.023	0.106
ITEM(7)	-0.032	0.173	-0.144	0.204	0.192
ITEM(8)	0.284	0.363	0.135	-0.186	-0.162
ITEM(9)	0.086	0.036	-0.240	-0.152	0.042
ITEM(10)	-0.141	0.136	-0.282	-0.142	-0.000
ITEM(11)	-0.084	0.071	0.110	0.452	-0.088
ITEM(12)	-0.078	-0.133	0.038	0.002	0.001
ITEM(13)	0.034	0.134	0.159	0.034	0.079
ITEM(14)	0.132	0.162	0.005	0.132	0.052
ITEM(15)	-0.105	-0.209	0.258	0.008	0.061
ITEM(16)	-0.013	-0.017	0.021	-0.097	-0.073
ITEM(17)	0.023	-0.096	0.152	-0.252	0.024
ITEM(18)	0.253	0.208	0.249	0.019	-0.259
ITEM(19)	0.247	0.042	-0.351	0.039	0.337
ITEM(20)	-0.210	-0.164	-0.132	0.022	-0.081
ITEM(21)	-0.417	0.284	0.188	0.206	-0.005
ITEM(22)	0.114	-0.063	0.016	0.154	0.009
ITEM(23)	-0.304	0.103	-0.053	0.049	0.124
ITEM(24)	0.050	0.052	0.086	0.113	0.005
ITEM(25)	0.135	0.112	-0.031	0.283	-0.111
ITEM(26)	-0.189	-0.037	0.077	-0.122	-0.222
ITEM(27)	-0.113	0.139	0.035	-0.059	-0.202
ITEM(28)	-0.116	-0.071	-0.152	0.136	-0.141
ITEM(29)	0.256	-0.029	-0.059	0.018	-0.112
ITEM(30)	0.100	-0.149	-0.108	0.014	-0.012
ITEM(31)	-0.020	0.088	-0.100	-0.003	-0.088
ITEM(32)	0.202	0.064	0.010	-0.171	0.143
ITEM(33)	0.075	-0.168	-0.064	0.058	0.066
ITEM(34)	0.040	-0.113	-0.074	-0.009	-0.059
ITEM(35)	0.042	-0.062	-0.241	-0.144	-0.154

COMPONENT LOADINGS

	16	17	18	19	20
ITEM(1)	0.076	0.003	0.097	0.178	-0.006
ITEM(2)	-0.154	-0.245	-0.168	0.125	0.027
ITEM(3)	-0.007	0.272	-0.256	-0.119	0.124
ITEM(4)	0.184	0.046	0.066	-0.337	0.070
ITEM(5)	-0.204	0.036	-0.192	0.040	0.042
ITEM(6)	-0.107	0.333	0.151	0.077	-0.213
ITEM(7)	-0.009	-0.157	-0.242	0.076	0.097
ITEM(8)	-0.140	0.025	0.167	-0.086	0.021
ITEM(9)	-0.261	0.127	-0.129	0.022	-0.264
ITEM(10)	-0.375	-0.222	-0.067	-0.013	0.196
ITEM(11)	0.064	-0.033	-0.272	-0.178	-0.123
ITEM(12)	0.166	-0.059	-0.064	0.035	0.211
ITEM(13)	0.172	-0.127	0.069	-0.158	0.004
ITEM(14)	-0.125	0.165	-0.051	0.036	0.089
ITEM(15)	-0.109	-0.222	0.064	-0.048	0.156
ITEM(16)	0.126	-0.000	-0.066	0.255	-0.005
ITEM(17)	-0.099	0.100	0.001	0.084	-0.168
ITEM(18)	0.180	0.079	0.118	0.083	0.236
ITEM(19)	0.084	0.001	0.221	-0.081	-0.183
ITEM(20)	0.016	-0.076	0.199	0.159	0.088
ITEM(21)	-0.054	-0.016	-0.002	-0.083	-0.243
ITEM(22)	-0.023	0.084	0.116	-0.205	0.006
ITEM(23)	0.048	0.251	0.133	0.041	0.149
ITEM(24)	0.064	-0.226	0.129	0.065	-0.024
ITEM(25)	-0.157	-0.087	0.097	-0.028	0.008
ITEM(26)	-0.107	-0.201	0.157	-0.122	-0.292
ITEM(27)	0.065	-0.067	-0.094	0.219	-0.036
ITEM(28)	-0.303	0.287	0.214	-0.006	0.274
ITEM(29)	0.024	0.006	-0.267	-0.380	0.063
ITEM(30)	0.021	-0.023	-0.145	-0.056	0.066
ITEM(31)	0.144	-0.103	-0.055	0.139	-0.071
ITEM(32)	0.170	-0.139	0.198	-0.125	0.108
ITEM(33)	-0.121	-0.097	0.012	0.055	-0.067
ITEM(34)	0.254	0.207	-0.179	0.203	-0.030
ITEM(35)	0.216	0.034	-0.017	-0.056	-0.148

COMPONENT LOADINGS

	21	22	23	24	25
ITEM(1)	0.180	0.078	-0.076	-0.084	0.026
ITEM(2)	-0.122	0.042	0.118	0.079	-0.040
ITEM(3)	-0.026	-0.053	0.020	-0.104	0.008
ITEM(4)	0.075	-0.091	0.133	-0.127	-0.104
ITEM(5)	0.111	0.017	0.033	-0.161	-0.036
ITEM(6)	0.174	0.257	0.038	0.186	-0.124
ITEM(7)	0.173	-0.186	0.071	0.136	-0.226
ITEM(8)	0.181	0.002	0.084	0.120	-0.072
ITEM(9)	-0.066	-0.107	0.235	-0.129	0.258
ITEM(10)	0.025	0.213	-0.105	0.023	0.007
ITEM(11)	0.075	-0.046	0.044	-0.112	0.041
ITEM(12)	0.081	-0.210	-0.223	0.210	0.178
ITEM(13)	0.048	-0.028	0.078	0.234	-0.011
ITEM(14)	-0.306	-0.081	-0.113	0.090	0.015
ITEM(15)	-0.217	0.035	0.284	-0.006	0.119
ITEM(16)	0.072	-0.203	0.110	-0.185	-0.131
ITEM(17)	0.009	-0.239	-0.274	0.067	-0.010
ITEM(18)	-0.206	-0.045	0.135	-0.101	0.039
ITEM(19)	-0.129	-0.159	0.096	0.038	0.074
ITEM(20)	0.003	0.076	0.197	0.212	0.068
ITEM(21)	-0.159	-0.053	0.035	0.144	0.026
ITEM(22)	-0.025	-0.039	-0.057	0.013	0.052
ITEM(23)	-0.119	0.310	-0.137	-0.159	0.034
ITEM(24)	-0.011	-0.016	-0.081	-0.127	0.093
ITEM(25)	-0.040	0.009	-0.040	-0.256	-0.152
ITEM(26)	0.010	-0.062	-0.158	-0.090	-0.009
ITEM(27)	0.127	0.018	-0.131	-0.030	0.098
ITEM(28)	0.211	-0.242	0.106	0.043	-0.027
ITEM(29)	0.158	0.194	-0.026	0.095	0.191
ITEM(30)	-0.250	0.041	-0.101	0.054	-0.323
ITEM(31)	0.259	0.148	0.187	-0.076	0.050
ITEM(32)	0.083	0.001	-0.129	-0.142	0.067
ITEM(33)	-0.048	0.095	-0.066	0.067	0.033
ITEM(34)	-0.110	0.067	0.024	0.097	0.150
ITEM(35)	-0.070	0.124	0.092	0.042	-0.282

COMPONENT LOADINGS

	26	27	28	29	30
ITEM(1)	0.008	0.132	-0.134	0.073	0.081
ITEM(2)	-0.055	0.021	0.000	0.015	0.031
ITEM(3)	0.061	0.273	-0.006	-0.109	-0.026
ITEM(4)	0.065	-0.048	0.057	0.059	-0.107
ITEM(5)	0.045	0.085	0.027	0.038	0.186
ITEM(6)	-0.109	-0.067	-0.038	-0.066	-0.022
ITEM(7)	-0.085	-0.045	0.048	0.034	0.047
ITEM(8)	0.028	0.066	0.113	0.031	-0.009
ITEM(9)	-0.137	-0.123	-0.131	-0.057	0.005
ITEM(10)	0.079	-0.100	0.080	0.177	0.032
ITEM(11)	0.013	-0.024	-0.021	-0.080	-0.081
ITEM(12)	-0.106	0.020	0.057	-0.179	0.119
ITEM(13)	0.007	-0.231	-0.020	0.071	0.069
ITEM(14)	-0.039	-0.149	0.052	-0.228	0.108
ITEM(15)	-0.168	-0.007	0.071	-0.050	-0.061
ITEM(16)	-0.013	-0.276	-0.011	0.159	0.033
ITEM(17)	0.214	-0.156	0.023	0.011	-0.178
ITEM(18)	0.147	0.016	-0.131	0.102	0.046
ITEM(19)	0.052	0.043	-0.010	0.066	0.027
ITEM(20)	0.084	0.041	-0.130	-0.102	-0.069
ITEM(21)	0.096	0.065	0.036	0.069	0.012
ITEM(22)	-0.157	-0.008	0.048	0.203	-0.127
ITEM(23)	-0.036	-0.212	-0.015	0.021	0.090
ITEM(24)	0.108	0.156	-0.134	0.068	0.031
ITEM(25)	-0.028	-0.014	0.250	-0.085	-0.096
ITEM(26)	-0.008	0.052	-0.043	-0.018	0.338
ITEM(27)	-0.324	0.082	-0.140	0.090	-0.222
ITEM(28)	0.009	0.100	-0.058	0.022	0.066
ITEM(29)	0.056	-0.078	-0.133	0.086	0.050
ITEM(30)	0.085	0.008	-0.310	-0.043	-0.073
ITEM(31)	0.258	-0.101	0.050	-0.260	-0.001
ITEM(32)	-0.125	-0.040	0.069	-0.181	-0.052
ITEM(33)	0.170	0.130	0.113	-0.018	-0.210
ITEM(34)	0.063	0.087	0.313	0.201	0.087
ITEM(35)	-0.195	0.151	0.073	-0.039	0.111

COMPONENT LOADINGS

	31	32	33	34	35
ITEM(1)	-0.170	0.021	-0.059	-0.062	0.002
ITEM(2)	0.041	-0.071	0.015	-0.096	-0.141
ITEM(3)	0.060	0.064	0.019	-0.057	-0.019
ITEM(4)	-0.001	0.017	0.129	0.075	0.080
ITEM(5)	-0.135	-0.001	-0.092	-0.003	0.014
ITEM(6)	0.167	0.011	0.043	0.094	0.079
ITEM(7)	0.017	0.054	0.162	-0.048	0.181
ITEM(8)	-0.049	0.065	-0.024	0.036	-0.031
ITEM(9)	-0.085	0.001	-0.033	0.027	0.027
ITEM(10)	0.037	-0.004	-0.111	0.083	-0.019
ITEM(11)	0.056	-0.122	-0.090	0.006	-0.103
ITEM(12)	-0.077	0.034	0.012	0.049	-0.080
ITEM(13)	-0.041	-0.075	-0.053	0.077	-0.070
ITEM(14)	0.038	0.009	0.124	0.016	-0.005
ITEM(15)	0.003	0.081	0.017	0.128	0.015
ITEM(16)	0.072	-0.102	-0.014	-0.055	-0.076
ITEM(17)	-0.217	0.077	-0.016	0.049	-0.018
ITEM(18)	-0.089	-0.082	0.069	-0.067	0.104
ITEM(19)	0.054	0.002	0.032	0.085	0.023
ITEM(20)	-0.138	0.087	-0.061	-0.192	0.086
ITEM(21)	-0.105	-0.069	-0.190	0.015	0.043
ITEM(22)	0.087	0.230	-0.001	-0.284	-0.197
ITEM(23)	-0.082	-0.032	0.089	-0.002	-0.058
ITEM(24)	0.085	0.106	0.110	0.277	-0.127
ITEM(25)	-0.161	0.119	-0.005	0.042	0.110
ITEM(26)	0.135	0.011	0.094	-0.140	0.099
ITEM(27)	-0.008	-0.017	0.049	0.088	0.081
ITEM(28)	0.070	-0.142	-0.058	0.090	-0.074
ITEM(29)	-0.113	-0.020	0.092	0.009	0.090
ITEM(30)	0.132	0.088	-0.173	0.053	0.030
ITEM(31)	0.086	0.147	0.006	-0.010	-0.110
ITEM(32)	0.101	-0.182	-0.273	-0.052	0.106
ITEM(33)	0.039	-0.335	0.212	-0.091	-0.030
ITEM(34)	0.144	0.057	-0.118	0.060	0.101
ITEM(35)	-0.256	-0.090	0.012	0.064	-0.165

VARIANCE EXPLAINED BY COMPONENTS

1	2	3	4	5
7.891	1.646	1.571	1.430	1.312
6	7	8	9	10
1.253	1.189	1.149	1.105	1.038
11	12	13	14	15
0.999	0.965	0.945	0.889	0.852
16	17	18	19	20
0.817	0.799	0.775	0.717	0.698
21	22	23	24	25
0.667	0.616	0.584	0.558	0.526
26	27	28	29	30
0.492	0.477	0.455	0.431	0.416
31	32	33	34	35
0.403	0.367	0.351	0.338	0.280

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3	4	5
22.546	4.703	4.487	4.085	3.749
6	7	8	9	10
3.579	3.397	3.284	3.158	2.965
11	12	13	14	15
2.855	2.756	2.701	2.541	2.433
16	17	18	19	20
2.334	2.282	2.214	2.049	1.996
21	22	23	24	25
1.906	1.760	1.667	1.594	1.504
26	27	28	29	30
1.406	1.363	1.300	1.230	1.189
31	32	33	34	35
1.151	1.049	1.003	0.965	0.799

Mathematics Form 333

LATENT ROOTS (EIGENVALUES)

1	2	3	4	5
7.634	1.714	1.496	1.390	1.312
6	7	8	9	10
1.278	1.180	1.140	1.121	1.099
11	12	13	14	15
1.004	0.942	0.915	0.877	0.865
16	17	18	19	20
0.822	0.779	0.764	0.703	0.688
21	22	23	24	25
0.677	0.622	0.604	0.591	0.561
26	27	28	29	30
0.547	0.508	0.497	0.479	0.434
31	32	33	34	35
0.412	0.390	0.342	0.322	0.291

COMPONENT LOADINGS

	1	2	3	4	5
ITEM(1)	0.395	-0.200	-0.180	-0.452	0.214
ITEM(2)	0.404	-0.006	0.044	-0.201	0.363
ITEM(3)	0.241	-0.127	-0.251	0.229	0.054
ITEM(4)	0.470	-0.421	0.090	0.001	-0.296
ITEM(5)	0.248	-0.332	-0.189	0.103	0.497
ITEM(6)	0.456	0.183	-0.195	0.216	0.138
ITEM(7)	0.563	-0.337	-0.014	0.010	0.157
ITEM(8)	0.265	0.028	0.349	-0.352	0.244
ITEM(9)	0.528	0.122	-0.309	-0.018	-0.149
ITEM(10)	0.078	0.306	0.149	0.236	0.350
ITEM(11)	0.476	-0.005	-0.067	-0.277	-0.198
ITEM(12)	0.503	0.147	0.019	-0.087	-0.064
ITEM(13)	0.423	-0.226	0.133	0.383	0.028
ITEM(14)	0.428	0.166	-0.093	0.077	-0.337
ITEM(15)	0.246	-0.498	0.019	0.017	0.002
ITEM(16)	0.446	-0.189	0.548	0.245	-0.068
ITEM(17)	0.265	0.300	0.464	-0.222	-0.266
ITEM(18)	0.410	0.158	-0.192	0.371	-0.058
ITEM(19)	0.365	0.116	0.127	0.026	-0.177
ITEM(20)	0.387	0.287	0.110	0.066	0.286
ITEM(21)	0.607	-0.126	0.102	-0.043	-0.089
ITEM(22)	0.595	-0.081	-0.262	-0.088	-0.216
ITEM(23)	0.497	0.036	0.226	-0.006	0.105
ITEM(24)	0.688	-0.169	-0.129	-0.052	-0.007
ITEM(25)	0.509	0.004	0.096	0.128	0.156
ITEM(26)	0.167	0.229	0.077	-0.306	0.222
ITEM(27)	0.660	0.015	0.055	-0.054	-0.002
ITEM(28)	0.450	0.220	-0.280	0.259	0.027
ITEM(29)	0.549	0.256	0.026	0.170	0.088
ITEM(30)	0.735	-0.121	0.059	-0.008	0.069
ITEM(31)	0.544	-0.058	-0.064	-0.037	-0.165
ITEM(32)	0.591	-0.108	0.215	0.016	-0.094
ITEM(33)	0.436	0.396	-0.076	-0.021	-0.082
ITEM(34)	0.468	0.301	0.117	0.050	0.048
ITEM(35)	0.456	0.154	-0.383	-0.375	0.024

COMPONENT LOADINGS

	6	7	8	9	10
ITEM(1)	0.292	-0.049	-0.143	-0.020	0.202
ITEM(2)	0.021	0.095	0.138	-0.397	-0.186
ITEM(3)	0.165	0.006	0.517	-0.271	-0.351
ITEM(4)	-0.148	-0.034	-0.103	0.185	-0.170
ITEM(5)	0.002	-0.087	-0.042	-0.122	0.126
ITEM(6)	-0.047	-0.094	-0.166	-0.296	0.054
ITEM(7)	-0.219	-0.135	-0.099	-0.102	0.118
ITEM(8)	0.063	0.329	-0.263	-0.200	-0.080
ITEM(9)	0.186	0.030	-0.009	0.076	0.145
ITEM(10)	0.085	0.273	-0.243	0.170	-0.351
ITEM(11)	-0.205	0.097	0.015	-0.080	-0.114
ITEM(12)	0.040	-0.170	-0.308	0.080	-0.055
ITEM(13)	0.010	0.402	0.079	-0.072	0.252
ITEM(14)	0.200	0.104	-0.242	-0.326	-0.208
ITEM(15)	0.475	0.101	-0.070	0.187	0.071
ITEM(16)	-0.014	0.065	0.057	-0.191	-0.002
ITEM(17)	0.078	-0.162	0.141	-0.247	0.067
ITEM(18)	0.155	-0.207	-0.056	-0.004	0.122
ITEM(19)	0.411	0.016	-0.340	-0.041	0.116
ITEM(20)	-0.422	-0.086	-0.196	0.166	-0.082
ITEM(21)	-0.077	-0.168	0.020	0.228	-0.113
ITEM(22)	0.009	-0.002	-0.000	0.054	-0.259
ITEM(23)	-0.010	-0.357	0.145	0.159	-0.265
ITEM(24)	-0.167	-0.152	-0.019	0.024	-0.021
ITEM(25)	0.216	-0.227	0.004	0.066	-0.303
ITEM(26)	0.258	0.168	0.376	0.370	0.071
ITEM(27)	0.104	0.144	0.099	0.181	-0.079
ITEM(28)	-0.073	0.315	-0.056	0.134	-0.004
ITEM(29)	0.174	-0.170	0.107	-0.022	0.206
ITEM(30)	-0.079	0.010	0.013	0.210	0.143
ITEM(31)	-0.328	0.447	0.039	0.064	0.027
ITEM(32)	-0.082	0.024	0.233	-0.140	0.170
ITEM(33)	0.067	0.149	0.240	0.091	0.012
ITEM(34)	-0.156	-0.129	0.082	0.003	0.417
ITEM(35)	-0.131	-0.003	0.019	-0.181	0.024

COMPONENT LOADINGS

	11	12	13	14	15
ITEM(1)	0.103	-0.005	0.060	-0.088	0.012
ITEM(2)	-0.077	-0.174	0.167	-0.157	-0.028
ITEM(3)	-0.122	0.259	-0.076	-0.183	0.152
ITEM(4)	0.137	-0.251	-0.058	0.018	0.167
ITEM(5)	-0.243	-0.191	-0.053	0.451	0.002
ITEM(6)	0.328	-0.059	-0.420	-0.122	0.114
ITEM(7)	-0.032	0.049	-0.207	0.102	-0.089
ITEM(8)	-0.092	0.070	-0.082	-0.077	0.203
ITEM(9)	0.011	-0.011	-0.003	0.280	-0.239
ITEM(10)	0.264	0.058	0.044	0.042	-0.380
ITEM(11)	0.057	-0.340	0.211	0.190	-0.041
ITEM(12)	-0.421	0.101	-0.354	-0.086	-0.100
ITEM(13)	-0.116	0.202	-0.045	0.078	-0.255
ITEM(14)	0.076	-0.095	-0.072	0.253	0.263
ITEM(15)	0.307	-0.041	0.077	-0.099	0.074
ITEM(16)	0.021	-0.067	0.090	0.152	0.054
ITEM(17)	0.213	0.057	-0.250	0.159	-0.162
ITEM(18)	0.012	0.328	0.076	0.083	0.093
ITEM(19)	-0.368	0.129	0.271	-0.150	0.055
ITEM(20)	0.074	0.073	0.252	0.120	0.285
ITEM(21)	-0.048	-0.053	-0.148	-0.169	0.047
ITEM(22)	0.004	-0.109	0.133	0.086	-0.132
ITEM(23)	-0.304	-0.028	0.026	0.050	-0.058
ITEM(24)	0.105	0.250	0.123	0.004	0.071
ITEM(25)	0.207	0.068	0.042	-0.118	-0.175
ITEM(26)	0.041	0.248	-0.252	0.217	0.273
ITEM(27)	-0.014	-0.109	0.063	0.172	0.047
ITEM(28)	-0.027	-0.101	-0.026	-0.087	0.277
ITEM(29)	-0.047	-0.223	0.107	-0.197	-0.009
ITEM(30)	0.099	0.004	-0.159	-0.182	-0.084
ITEM(31)	-0.155	0.058	-0.120	-0.224	-0.111
ITEM(32)	0.067	-0.055	0.170	-0.033	0.037
ITEM(33)	-0.107	-0.441	-0.006	0.064	-0.057
ITEM(34)	0.116	0.014	0.175	-0.111	0.052
ITEM(35)	0.104	0.003	0.106	-0.064	-0.193

COMPONENT LOADINGS

	16	17	18	19	20
ITEM(1)	0.140	-0.061	-0.269	-0.159	-0.035
ITEM(2)	0.187	-0.028	0.144	0.161	0.212
ITEM(3)	0.002	0.088	-0.093	-0.005	0.105
ITEM(4)	0.079	0.032	-0.071	0.078	-0.081
ITEM(5)	-0.080	0.193	0.112	0.041	-0.036
ITEM(6)	-0.030	0.157	0.022	-0.063	-0.080
ITEM(7)	-0.011	-0.009	-0.048	0.206	-0.150
ITEM(8)	-0.233	-0.272	-0.210	-0.014	-0.100
ITEM(9)	0.104	-0.311	0.062	-0.131	0.172
ITEM(10)	-0.058	0.279	-0.073	-0.016	-0.019
ITEM(11)	-0.264	-0.224	0.024	-0.156	-0.182
ITEM(12)	0.196	0.097	-0.142	-0.034	0.148
ITEM(13)	0.052	-0.148	0.108	-0.075	0.062
ITEM(14)	0.055	0.107	0.038	-0.124	0.129
ITEM(15)	-0.193	0.113	0.044	-0.080	0.307
ITEM(16)	-0.156	-0.122	-0.038	0.091	0.074
ITEM(17)	0.050	-0.025	0.167	0.025	0.050
ITEM(18)	-0.208	-0.193	-0.344	0.216	-0.028
ITEM(19)	0.054	0.198	0.257	0.166	-0.083
ITEM(20)	0.103	-0.086	0.033	0.010	0.243
ITEM(21)	-0.302	-0.103	0.262	0.168	0.054
ITEM(22)	0.091	0.062	-0.038	0.299	-0.050
ITEM(23)	-0.122	-0.022	-0.008	-0.414	0.047
ITEM(24)	0.045	0.066	0.023	-0.111	0.127
ITEM(25)	0.228	-0.274	0.025	0.089	-0.193
ITEM(26)	0.063	0.111	0.122	0.165	-0.053
ITEM(27)	0.160	0.022	-0.075	0.046	-0.207
ITEM(28)	0.086	-0.235	0.263	-0.160	-0.161
ITEM(29)	-0.240	0.105	0.069	-0.102	-0.262
ITEM(30)	-0.011	0.047	0.064	-0.081	0.088
ITEM(31)	0.009	0.113	-0.114	0.037	0.049
ITEM(32)	0.280	0.090	-0.120	-0.191	-0.215
ITEM(33)	-0.203	0.011	-0.307	0.061	0.143
ITEM(34)	0.103	0.186	-0.090	0.137	0.179
ITEM(35)	-0.239	-0.135	0.196	0.051	0.002

COMPONENT LOADINGS

	21	22	23	24	25
ITEM(1)	0.006	0.057	0.144	-0.172	0.243
ITEM(2)	0.376	-0.111	0.063	0.083	-0.059
ITEM(3)	-0.180	0.066	0.122	-0.053	-0.098
ITEM(4)	0.018	-0.267	0.128	0.150	-0.047
ITEM(5)	-0.158	-0.159	0.068	-0.016	0.001
ITEM(6)	-0.023	-0.092	0.068	0.030	-0.071
ITEM(7)	0.216	0.211	-0.040	-0.105	0.027
ITEM(8)	-0.246	-0.004	0.038	0.092	-0.104
ITEM(9)	0.026	0.026	0.177	-0.002	-0.330
ITEM(10)	-0.032	0.136	0.138	0.001	-0.058
ITEM(11)	0.148	-0.274	0.107	-0.171	-0.032
ITEM(12)	0.022	0.023	-0.092	-0.101	-0.116
ITEM(13)	-0.107	-0.121	-0.068	0.152	0.234
ITEM(14)	-0.024	0.012	-0.283	0.067	0.141
ITEM(15)	0.090	-0.010	-0.101	-0.068	-0.109
ITEM(16)	0.013	0.179	-0.073	-0.295	-0.022
ITEM(17)	0.053	0.029	0.196	-0.014	0.096
ITEM(18)	0.189	-0.078	0.038	0.169	-0.027
ITEM(19)	-0.032	-0.046	0.159	0.074	0.024
ITEM(20)	0.014	0.046	0.018	0.129	0.035
ITEM(21)	-0.102	0.036	0.174	-0.016	-0.051
ITEM(22)	-0.270	0.209	0.020	-0.025	0.146
ITEM(23)	-0.017	-0.063	-0.088	-0.010	0.043
ITEM(24)	0.057	0.237	0.059	0.065	0.186
ITEM(25)	-0.047	-0.313	-0.174	-0.116	0.127
ITEM(26)	0.040	-0.000	-0.091	0.054	0.068
ITEM(27)	0.093	0.085	-0.207	0.007	-0.266
ITEM(28)	0.043	0.049	0.157	-0.296	0.062
ITEM(29)	0.164	0.158	-0.133	0.075	0.029
ITEM(30)	-0.077	-0.009	-0.005	0.219	0.044
ITEM(31)	0.167	-0.067	-0.127	-0.063	0.015
ITEM(32)	-0.134	0.106	0.107	0.207	-0.151
ITEM(33)	0.033	-0.101	0.147	0.022	0.216
ITEM(34)	-0.274	-0.189	-0.092	-0.281	-0.110
ITEM(35)	-0.172	0.023	-0.275	0.097	-0.070

COMPONENT LOADINGS

	26	27	28	29	30
ITEM(1)	0.221	0.006	0.069	0.094	0.109
ITEM(2)	0.120	0.014	-0.016	-0.150	0.001
ITEM(3)	-0.043	0.037	0.107	0.241	-0.000
ITEM(4)	0.055	0.265	0.016	0.130	0.019
ITEM(5)	0.036	-0.132	-0.180	0.095	-0.056
ITEM(6)	-0.154	-0.060	0.031	-0.237	0.041
ITEM(7)	-0.141	0.294	0.174	0.074	-0.064
ITEM(8)	-0.131	0.010	0.008	-0.024	-0.162
ITEM(9)	-0.139	0.093	0.127	-0.070	0.001
ITEM(10)	0.170	0.148	-0.004	0.038	0.011
ITEM(11)	-0.070	-0.119	0.097	-0.018	0.122
ITEM(12)	-0.012	-0.100	-0.081	0.073	0.216
ITEM(13)	0.037	0.024	0.151	0.026	0.056
ITEM(14)	0.181	0.068	0.114	0.012	-0.005
ITEM(15)	-0.188	-0.002	-0.170	0.075	-0.018
ITEM(16)	0.016	-0.047	-0.045	-0.135	0.220
ITEM(17)	0.003	-0.053	-0.193	0.256	-0.168
ITEM(18)	0.207	-0.000	-0.221	-0.033	-0.032
ITEM(19)	-0.109	0.078	0.042	-0.018	-0.037
ITEM(20)	-0.187	-0.051	0.026	0.234	0.141
ITEM(21)	0.277	-0.104	0.151	-0.038	0.081
ITEM(22)	-0.139	-0.039	-0.152	-0.148	-0.012
ITEM(23)	0.026	0.227	-0.096	-0.159	-0.138
ITEM(24)	-0.046	-0.097	0.044	-0.151	-0.219
ITEM(25)	-0.159	-0.091	0.007	0.019	0.018
ITEM(26)	-0.030	0.156	-0.033	-0.133	0.126
ITEM(27)	0.130	-0.268	0.159	0.082	-0.200
ITEM(28)	0.075	0.048	-0.185	0.038	-0.055
ITEM(29)	-0.105	0.002	0.060	0.161	0.043
ITEM(30)	0.062	-0.182	0.027	-0.029	-0.020
ITEM(31)	-0.040	0.003	-0.204	0.043	-0.103
ITEM(32)	0.017	0.038	-0.176	-0.066	0.192
ITEM(33)	-0.152	-0.042	0.103	-0.008	0.030
ITEM(34)	0.104	0.135	0.087	-0.033	-0.159
ITEM(35)	0.080	0.142	-0.124	0.109	0.117

COMPONENT LOADINGS

	31	32	33	34	35
ITEM(1)	-0.118	0.143	-0.074	0.020	-0.014
ITEM(2)	0.100	0.009	0.047	0.066	-0.050
ITEM(3)	-0.036	0.043	0.019	-0.056	-0.027
ITEM(4)	0.004	0.147	0.203	-0.005	0.065
ITEM(5)	0.042	0.018	-0.038	-0.078	0.081
ITEM(6)	-0.221	0.091	-0.013	0.107	0.005
ITEM(7)	0.002	-0.206	-0.077	-0.025	-0.110
ITEM(8)	0.137	0.001	0.020	0.019	0.015
ITEM(9)	0.079	0.140	-0.076	-0.088	0.043
ITEM(10)	0.021	-0.017	0.017	-0.036	0.044
ITEM(11)	0.095	-0.035	0.024	0.038	-0.089
ITEM(12)	0.107	-0.083	0.170	0.079	0.045
ITEM(13)	-0.021	0.017	0.069	0.230	0.004
ITEM(14)	0.131	-0.052	-0.142	-0.076	-0.011
ITEM(15)	0.006	-0.139	-0.027	0.120	-0.024
ITEM(16)	-0.117	0.136	0.104	-0.153	0.016
ITEM(17)	-0.030	0.016	0.005	0.049	-0.021
ITEM(18)	0.004	-0.011	-0.004	0.019	-0.047
ITEM(19)	-0.211	-0.015	-0.016	-0.103	-0.007
ITEM(20)	-0.090	0.063	-0.108	0.062	-0.044
ITEM(21)	0.039	-0.074	-0.211	0.096	0.112
ITEM(22)	0.104	0.134	-0.020	0.171	-0.151
ITEM(23)	-0.135	0.043	-0.054	0.074	-0.092
ITEM(24)	0.038	-0.048	0.180	-0.060	0.268
ITEM(25)	0.048	-0.075	-0.077	-0.111	0.098
ITEM(26)	0.027	0.050	0.014	-0.023	0.044
ITEM(27)	-0.219	-0.019	0.055	0.101	-0.028
ITEM(28)	0.042	-0.115	0.102	0.009	-0.069
ITEM(29)	0.237	0.212	0.025	0.049	0.062
ITEM(30)	0.072	0.014	0.065	-0.281	-0.295
ITEM(31)	-0.062	0.164	-0.243	-0.089	0.119
ITEM(32)	0.038	-0.223	-0.128	0.005	0.059
ITEM(33)	-0.090	-0.211	0.043	-0.045	0.043
ITEM(34)	0.106	-0.005	0.023	0.040	-0.010
ITEM(35)	-0.187	-0.073	0.134	-0.044	0.047

VARIANCE EXPLAINED BY COMPONENTS

1	2	3	4	5
7.634	1.714	1.496	1.390	1.312
6	7	8	9	10
1.278	1.180	1.140	1.121	1.099
11	12	13	14	15
1.004	0.942	0.915	0.877	0.865
16	17	18	19	20
0.822	0.779	0.764	0.703	0.688
21	22	23	24	25
0.677	0.622	0.604	0.591	0.561
26	27	28	29	30
0.547	0.508	0.497	0.479	0.434
31	32	33	34	35
0.412	0.390	0.342	0.322	0.291

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3	4	5
21.811	4.898	4.274	3.971	3.748
6	7	8	9	10
3.652	3.370	3.257	3.203	3.141
11	12	13	14	15
2.870	2.692	2.613	2.507	2.472
16	17	18	19	20
2.349	2.225	2.184	2.008	1.967
21	22	23	24	25
1.933	1.777	1.725	1.687	1.603
26	27	28	29	30
1.563	1.450	1.419	1.369	1.240
31	32	33	34	35
1.178	1.113	0.976	0.921	0.832

Mathematics Form 444

LATENT ROOTS (EIGENVALUES)

1	2	3	4	5
8.004	1.491	1.466	1.348	1.300
6	7	8	9	10
1.215	1.165	1.121	1.067	1.009
11	12	13	14	15
1.004	0.978	0.978	0.901	0.872
16	17	18	19	20
0.845	0.777	0.751	0.740	0.695
21	22	23	24	25
0.663	0.624	0.594	0.569	0.536
26	27	28	29	30
0.528	0.503	0.481	0.475	0.442
31	32	33	34	35
0.422	0.394	0.367	0.357	0.320

COMPONENT LOADINGS

	1	2	3	4	5
ITEM(1)	0.147	0.169	0.254	-0.416	0.481
ITEM(2)	0.618	-0.033	-0.246	0.133	-0.038
ITEM(3)	0.124	0.054	0.255	0.501	0.266
ITEM(4)	0.283	-0.370	0.239	0.190	0.128
ITEM(5)	0.644	0.227	-0.080	0.100	0.001
ITEM(6)	0.462	0.367	-0.059	0.105	-0.016
ITEM(7)	0.290	-0.144	0.192	-0.080	-0.514
ITEM(8)	0.528	-0.069	0.110	-0.167	0.147
ITEM(9)	0.449	0.167	0.089	0.174	0.159
ITEM(10)	0.312	-0.267	0.057	0.285	-0.203
ITEM(11)	0.574	-0.044	-0.434	0.006	0.083
ITEM(12)	0.398	0.116	0.281	0.167	0.210
ITEM(13)	0.529	0.039	0.134	-0.011	-0.096
ITEM(14)	0.405	0.057	0.467	-0.061	0.072
ITEM(15)	0.548	0.099	0.205	-0.203	-0.061
ITEM(16)	0.359	0.217	0.372	-0.026	0.130
ITEM(17)	0.574	0.051	-0.128	-0.016	0.043
ITEM(18)	0.313	-0.260	0.055	0.052	0.114
ITEM(19)	0.181	0.038	-0.194	-0.421	0.199
ITEM(20)	0.144	-0.405	0.144	0.120	-0.165
ITEM(21)	0.524	0.406	-0.124	0.235	-0.195
ITEM(22)	0.169	0.156	0.260	-0.288	-0.364
ITEM(23)	0.531	0.292	0.213	-0.050	-0.357
ITEM(24)	0.539	-0.201	0.156	0.115	0.225
ITEM(25)	0.460	-0.353	0.178	0.045	-0.053
ITEM(26)	0.700	0.198	-0.205	0.147	0.025
ITEM(27)	0.516	0.004	0.008	0.081	-0.084
ITEM(28)	0.527	0.001	-0.052	0.043	-0.019
ITEM(29)	0.449	-0.297	-0.045	-0.188	0.174
ITEM(30)	0.568	0.014	-0.006	-0.269	-0.120
ITEM(31)	0.659	-0.065	-0.084	0.000	0.068
ITEM(32)	0.586	-0.262	-0.133	-0.102	-0.046
ITEM(33)	0.634	0.006	-0.322	0.005	0.179
ITEM(34)	0.606	-0.178	-0.162	-0.040	-0.124
ITEM(35)	0.425	-0.160	-0.016	-0.359	-0.038

COMPONENT LOADINGS

	6	7	8	9	10
ITEM(1)	-0.033	-0.203	0.043	0.099	0.051
ITEM(2)	-0.072	-0.119	-0.128	-0.023	-0.011
ITEM(3)	0.140	0.399	-0.069	0.185	-0.010
ITEM(4)	0.268	-0.231	0.199	-0.227	-0.167
ITEM(5)	0.151	0.045	0.029	0.009	0.133
ITEM(6)	0.108	-0.055	0.095	-0.316	0.073
ITEM(7)	0.418	-0.043	-0.103	-0.065	0.194
ITEM(8)	-0.149	0.176	0.007	0.241	0.199
ITEM(9)	-0.228	0.017	-0.016	-0.324	0.123
ITEM(10)	-0.018	0.361	0.196	0.281	-0.038
ITEM(11)	0.008	0.056	0.085	0.151	-0.236
ITEM(12)	0.081	-0.392	-0.036	-0.149	0.099
ITEM(13)	-0.161	0.105	-0.156	-0.074	0.169
ITEM(14)	-0.082	0.043	0.118	0.141	0.000
ITEM(15)	0.372	0.031	-0.062	0.121	-0.058
ITEM(16)	-0.107	0.075	-0.344	0.088	-0.352
ITEM(17)	0.197	0.170	0.150	0.038	-0.271
ITEM(18)	0.027	0.234	0.337	-0.282	0.338
ITEM(19)	0.182	0.282	0.198	-0.313	-0.209
ITEM(20)	-0.557	-0.079	-0.023	-0.208	-0.312
ITEM(21)	-0.170	0.101	-0.059	-0.093	0.119
ITEM(22)	-0.183	0.163	0.303	-0.234	-0.257
ITEM(23)	0.042	0.025	-0.048	0.035	-0.181
ITEM(24)	0.003	-0.020	0.131	0.046	-0.132
ITEM(25)	0.185	-0.051	-0.307	-0.149	-0.015
ITEM(26)	0.047	0.038	0.035	-0.002	-0.097
ITEM(27)	0.009	-0.212	0.323	0.161	0.157
ITEM(28)	-0.194	-0.268	0.345	0.325	0.006
ITEM(29)	-0.065	0.378	-0.173	-0.158	0.189
ITEM(30)	-0.229	-0.042	0.093	0.041	0.255
ITEM(31)	-0.199	-0.085	-0.106	-0.090	0.022
ITEM(32)	0.154	-0.225	0.087	0.031	-0.122
ITEM(33)	0.025	-0.056	-0.203	-0.066	-0.139
ITEM(34)	0.002	-0.120	-0.306	0.066	0.070
ITEM(35)	-0.062	0.064	-0.168	0.212	0.079

COMPONENT LOADINGS

	11	12	13	14	15
ITEM(1)	0.239	-0.003	-0.262	0.093	0.040
ITEM(2)	0.050	0.168	0.010	-0.124	-0.107
ITEM(3)	0.161	-0.283	0.021	-0.076	0.148
ITEM(4)	0.032	0.028	-0.018	-0.207	-0.270
ITEM(5)	-0.008	-0.017	0.156	-0.160	0.009
ITEM(6)	0.005	0.012	-0.250	0.251	-0.043
ITEM(7)	0.115	0.144	0.113	-0.107	0.265
ITEM(8)	0.082	0.008	0.077	-0.347	-0.107
ITEM(9)	0.207	-0.237	-0.075	0.058	0.159
ITEM(10)	0.380	0.225	-0.261	0.087	-0.049
ITEM(11)	-0.038	0.018	0.184	-0.121	0.091
ITEM(12)	0.110	0.318	-0.053	-0.121	-0.001
ITEM(13)	-0.184	0.065	0.286	0.091	-0.316
ITEM(14)	-0.096	0.255	0.176	0.222	0.020
ITEM(15)	0.154	0.037	0.038	-0.023	-0.310
ITEM(16)	-0.163	0.022	0.151	0.035	0.221
ITEM(17)	-0.216	0.073	-0.216	0.165	-0.223
ITEM(18)	-0.445	0.135	-0.015	0.048	0.223
ITEM(19)	0.316	0.170	0.359	0.034	0.152
ITEM(20)	0.200	0.189	0.098	0.113	0.012
ITEM(21)	0.045	0.211	-0.064	0.022	-0.118
ITEM(22)	-0.023	-0.289	-0.278	-0.280	0.002
ITEM(23)	-0.144	-0.057	0.095	0.068	0.118
ITEM(24)	-0.308	-0.206	0.072	0.062	-0.172
ITEM(25)	-0.038	-0.142	-0.179	-0.132	0.208
ITEM(26)	0.051	-0.018	-0.167	-0.034	0.052
ITEM(27)	0.186	-0.199	0.225	0.329	0.171
ITEM(28)	-0.126	0.090	-0.049	-0.193	0.252
ITEM(29)	0.052	-0.033	-0.051	0.095	-0.030
ITEM(30)	0.058	-0.238	0.089	-0.197	-0.151
ITEM(31)	0.106	-0.045	0.042	-0.075	-0.040
ITEM(32)	0.052	-0.226	0.025	0.235	0.027
ITEM(33)	-0.102	0.104	-0.053	-0.174	0.184
ITEM(34)	0.030	-0.263	-0.027	0.243	-0.065
ITEM(35)	-0.118	0.218	-0.380	0.123	0.128

COMPONENT LOADINGS

	16	17	18	19	20
ITEM(1)	-0.047	0.267	0.140	-0.254	0.229
ITEM(2)	-0.351	0.034	-0.026	-0.128	0.242
ITEM(3)	-0.173	0.069	0.145	0.213	0.221
ITEM(4)	0.175	-0.289	-0.030	-0.317	0.038
ITEM(5)	-0.066	-0.151	0.230	0.065	-0.213
ITEM(6)	0.019	-0.176	0.257	0.171	-0.121
ITEM(7)	-0.087	-0.045	-0.092	-0.003	0.300
ITEM(8)	0.284	0.017	0.167	0.041	-0.131
ITEM(9)	0.236	-0.059	-0.475	0.084	0.040
ITEM(10)	0.129	-0.024	-0.002	-0.077	-0.042
ITEM(11)	0.032	-0.039	-0.189	0.073	0.014
ITEM(12)	0.007	0.112	-0.067	0.328	-0.063
ITEM(13)	0.288	0.045	0.117	0.010	0.137
ITEM(14)	-0.358	-0.055	-0.245	-0.050	-0.238
ITEM(15)	-0.031	0.111	-0.060	0.174	-0.059
ITEM(16)	0.130	-0.309	0.072	-0.149	0.124
ITEM(17)	0.112	0.201	-0.149	0.085	0.066
ITEM(18)	0.018	0.167	0.125	-0.028	0.144
ITEM(19)	0.035	0.043	0.110	-0.002	0.014
ITEM(20)	0.026	0.174	0.155	0.184	0.046
ITEM(21)	-0.093	0.034	0.055	-0.240	0.090
ITEM(22)	-0.171	-0.061	0.085	0.026	-0.000
ITEM(23)	0.110	0.258	-0.055	-0.073	-0.112
ITEM(24)	-0.144	-0.004	-0.013	0.049	0.119
ITEM(25)	0.083	0.258	0.056	-0.111	-0.279
ITEM(26)	0.058	0.012	-0.058	-0.190	0.027
ITEM(27)	0.172	-0.080	0.052	-0.146	-0.029
ITEM(28)	-0.048	0.037	0.033	-0.018	-0.114
ITEM(29)	-0.228	-0.107	-0.166	-0.122	-0.231
ITEM(30)	0.002	0.013	-0.192	0.091	0.168
ITEM(31)	-0.225	-0.148	0.148	0.004	-0.058
ITEM(32)	-0.090	-0.129	0.078	0.205	0.064
ITEM(33)	0.080	0.029	-0.028	0.027	-0.009
ITEM(34)	-0.045	0.159	0.119	-0.103	-0.041
ITEM(35)	0.128	-0.327	0.009	0.206	0.137

COMPONENT LOADINGS

	21	22	23	24	25
ITEM(1)	-0.069	0.110	0.107	0.106	-0.058
ITEM(2)	0.146	0.014	0.057	-0.114	0.000
ITEM(3)	0.050	0.049	-0.020	-0.076	-0.071
ITEM(4)	0.024	0.095	-0.100	-0.037	-0.041
ITEM(5)	-0.005	0.004	0.065	0.133	-0.336
ITEM(6)	-0.213	0.219	0.107	-0.140	0.274
ITEM(7)	-0.120	0.112	0.038	-0.101	0.042
ITEM(8)	0.014	0.151	-0.220	-0.233	0.070
ITEM(9)	-0.067	0.060	0.031	-0.001	-0.066
ITEM(10)	-0.051	-0.131	0.063	0.213	0.100
ITEM(11)	-0.093	0.139	0.176	0.004	0.112
ITEM(12)	0.306	-0.281	-0.042	0.006	0.083
ITEM(13)	0.074	-0.049	0.392	0.021	-0.127
ITEM(14)	-0.161	0.127	-0.029	-0.130	-0.203
ITEM(15)	0.001	0.177	0.027	0.069	0.121
ITEM(16)	0.109	0.050	0.008	0.146	0.192
ITEM(17)	0.027	0.075	-0.111	0.045	-0.148
ITEM(18)	0.071	0.102	-0.146	0.124	0.056
ITEM(19)	-0.052	-0.254	0.005	-0.099	0.018
ITEM(20)	-0.042	0.186	-0.031	-0.080	-0.064
ITEM(21)	-0.045	-0.077	-0.064	0.103	-0.008
ITEM(22)	0.190	-0.032	0.090	-0.065	-0.096
ITEM(23)	0.062	-0.101	-0.246	0.071	0.102
ITEM(24)	-0.246	-0.333	0.056	-0.137	0.151
ITEM(25)	-0.225	-0.121	0.211	0.056	-0.072
ITEM(26)	0.050	-0.100	0.005	-0.252	-0.065
ITEM(27)	0.122	-0.053	-0.041	-0.068	-0.074
ITEM(28)	0.061	0.040	0.232	-0.015	0.151
ITEM(29)	0.321	0.045	0.100	0.026	0.167
ITEM(30)	-0.148	-0.041	-0.074	0.148	0.075
ITEM(31)	-0.251	-0.104	-0.240	0.222	0.031
ITEM(32)	0.182	0.069	0.005	0.248	-0.065
ITEM(33)	-0.010	0.145	-0.089	0.064	-0.126
ITEM(34)	0.115	0.007	-0.129	-0.220	0.040
ITEM(35)	-0.050	-0.182	-0.047	-0.132	-0.152

COMPONENT LOADINGS

	26	27	28	29	30
ITEM(1)	-0.016	0.008	0.091	-0.090	-0.004
ITEM(2)	0.139	0.165	-0.078	-0.042	0.260
ITEM(3)	-0.227	-0.103	-0.068	0.046	0.073
ITEM(4)	-0.191	-0.123	0.041	0.011	0.064
ITEM(5)	0.139	0.030	0.123	-0.076	-0.135
ITEM(6)	-0.124	0.085	0.017	0.032	0.033
ITEM(7)	-0.007	0.106	-0.019	-0.146	-0.161
ITEM(8)	0.100	0.112	0.084	-0.171	0.030
ITEM(9)	0.154	0.024	0.018	-0.182	0.059
ITEM(10)	0.041	0.165	0.123	0.030	-0.038
ITEM(11)	0.071	-0.140	0.211	0.085	0.158
ITEM(12)	0.006	0.037	0.068	0.093	-0.052
ITEM(13)	-0.152	0.085	-0.041	-0.014	0.098
ITEM(14)	-0.076	0.070	0.111	0.115	0.032
ITEM(15)	0.243	-0.269	-0.161	0.085	0.043
ITEM(16)	0.155	0.100	-0.017	0.136	-0.096
ITEM(17)	-0.013	0.203	-0.242	-0.051	-0.125
ITEM(18)	0.163	-0.034	0.059	0.134	0.078
ITEM(19)	-0.077	0.007	-0.020	0.009	-0.002
ITEM(20)	0.020	-0.107	-0.023	0.002	-0.101
ITEM(21)	0.006	-0.353	0.080	-0.086	-0.114
ITEM(22)	0.095	-0.009	0.007	0.035	0.001
ITEM(23)	-0.222	-0.028	0.086	-0.186	0.214
ITEM(24)	0.126	-0.058	0.059	-0.207	-0.177
ITEM(25)	0.045	-0.026	-0.063	0.105	0.090
ITEM(26)	0.009	0.091	0.059	0.218	-0.018
ITEM(27)	0.116	-0.107	-0.267	0.071	0.007
ITEM(28)	-0.154	-0.028	-0.169	-0.109	-0.061
ITEM(29)	-0.129	-0.067	-0.089	-0.114	-0.097
ITEM(30)	-0.208	0.033	0.025	0.311	-0.127
ITEM(31)	0.011	0.128	-0.229	-0.024	0.157
ITEM(32)	-0.055	0.047	0.236	-0.110	0.058
ITEM(33)	-0.150	-0.052	-0.067	-0.012	-0.202
ITEM(34)	0.029	0.028	0.152	0.107	-0.122
ITEM(35)	-0.039	-0.207	-0.020	0.000	0.143

COMPONENT LOADINGS

	31	32	33	34	35
ITEM(1)	-0.023	-0.107	0.056	0.045	-0.041
ITEM(2)	0.011	0.162	-0.119	0.201	-0.052
ITEM(3)	0.017	-0.001	0.004	0.005	0.050
ITEM(4)	0.074	-0.002	0.058	0.057	0.046
ITEM(5)	0.208	-0.093	0.057	0.193	-0.087
ITEM(6)	-0.048	0.009	-0.047	0.099	-0.017
ITEM(7)	-0.036	-0.134	0.035	-0.055	0.021
ITEM(8)	-0.094	0.005	-0.163	-0.062	0.057
ITEM(9)	0.114	0.116	0.070	-0.021	0.041
ITEM(10)	-0.076	0.107	0.103	0.057	-0.042
ITEM(11)	-0.122	-0.257	0.091	0.072	0.118
ITEM(12)	-0.092	-0.101	0.026	0.018	0.073
ITEM(13)	-0.083	0.012	0.109	-0.106	0.003
ITEM(14)	-0.084	0.084	-0.012	-0.050	0.053
ITEM(15)	0.082	0.126	0.073	-0.096	-0.116
ITEM(16)	0.060	0.015	-0.062	0.031	0.052
ITEM(17)	0.066	-0.123	-0.089	0.052	0.174
ITEM(18)	0.044	0.042	0.058	-0.031	-0.027
ITEM(19)	0.094	0.143	-0.018	-0.001	0.082
ITEM(20)	0.105	-0.103	-0.044	0.036	-0.104
ITEM(21)	-0.036	0.016	-0.162	-0.093	0.178
ITEM(22)	-0.170	0.012	0.088	-0.006	0.068
ITEM(23)	0.045	-0.035	0.044	0.110	-0.149
ITEM(24)	-0.070	0.016	-0.004	0.033	-0.109
ITEM(25)	-0.020	0.020	-0.202	0.023	0.078
ITEM(26)	0.109	-0.137	-0.049	-0.285	-0.243
ITEM(27)	-0.212	-0.066	-0.060	0.108	-0.021
ITEM(28)	0.234	0.119	0.057	-0.087	0.082
ITEM(29)	0.001	-0.162	-0.033	0.038	-0.075
ITEM(30)	0.074	0.024	-0.129	0.137	-0.039
ITEM(31)	-0.033	-0.142	0.180	-0.174	0.053
ITEM(32)	-0.015	0.085	-0.209	-0.200	0.008
ITEM(33)	-0.309	0.226	0.107	0.013	-0.141
ITEM(34)	0.101	0.107	0.248	0.034	0.191
ITEM(35)	0.073	-0.012	0.017	0.068	-0.000

VARIANCE EXPLAINED BY COMPONENTS

1	2	3	4	5
8.004	1.491	1.466	1.348	1.300
6	7	8	9	10
1.215	1.165	1.121	1.067	1.009
11	12	13	14	15
1.004	0.978	0.978	0.901	0.872
16	17	18	19	20
0.845	0.777	0.751	0.740	0.695
21	22	23	24	25
0.663	0.624	0.594	0.569	0.536
26	27	28	29	30
0.528	0.503	0.481	0.475	0.442
31	32	33	34	35
0.422	0.394	0.367	0.357	0.320

PERCENT OF TOTAL VARIANCE EXPLAINED

1	2	3	4	5
22.869	4.260	4.189	3.851	3.714
6	7	8	9	10
3.471	3.328	3.203	3.049	2.883
11	12	13	14	15
2.868	2.795	2.793	2.573	2.490
16	17	18	19	20
2.414	2.220	2.147	2.115	1.985
21	22	23	24	25
1.895	1.783	1.697	1.626	1.531
26	27	28	29	30
1.510	1.436	1.373	1.357	1.261
31	32	33	34	35
1.205	1.125	1.047	1.020	0.915

Appendix D

Partial Credit Model Analysis for Mathematics A

TABLE 3.1 Math101 1998 first run
Mar 10 9:00 1999 INPUT: 780 PERSONS 16 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 767 PERSONS 16 ITEMS 47 CATEGORIES

SUMMARY OF 767 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	15.3	16.0	.29	.42	.96	.0	1.00	.0
S.D.	7.7	.0	1.15	.13	.38	.8	.40	.8

RMSE .44 ADJ.S.D. 1.06 PERSON SEP 2.42 PERSON SEP REL. .85

MAXIMUM EXTREME SCORE: 10 PERSONS
MINIMUM EXTREME SCORE: 3 PERSONS

SUMMARY OF 16 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	733.6	767.0	.00	.07	.99	.0	1.00	.0
S.D.	337.7	.0	.73	.02	.14	3.4	.22	3.2

RMSE .07 ADJ.S.D. .73 ITEM SEP 10.45 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math101 1998 first run
Mar 10 9:00 1999 INPUT: 780 PERSONS 16 ITEMS R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
ANALYZED: 767 PERSONS 16 ITEMS 47 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	[illegible]	767	-1.303	.096	.96	-.8	.99	-.1	.35	1
[illegible]	[illegible]	[illegible]	-1.013	.091	.92	-1.9	.80	-2.5	.45	2
[illegible]	[illegible]	[illegible]	.005	.082	.98	-.5	.94	-1.1	.42	3
[illegible]	[illegible]	[illegible]	-.266	.083	.89	-3.5	.83	-3.1	.49	4
[illegible]	[illegible]	[illegible]	-.997	.091	1.20	4.2	1.43	4.5	.16	5
[illegible]	[illegible]	[illegible]	.264	.081	1.32	9.2	1.46	8.2	.11	6
[illegible]	[illegible]	[illegible]	-.434	.084	1.08	2.2	1.14	2.3	.32	7
[illegible]	[illegible]	[illegible]	.117	.081	1.09	2.7	1.11	2.1	.33	8
[illegible]	[illegible]	[illegible]	.359	.052	.89	-2.6	.83	-2.3	.61	9
[illegible]	[illegible]	[illegible]	.066	.059	.84	-3.7	.81	-4.0	.61	10
[illegible]	[illegible]	[illegible]	.366	.051	1.00	.1	1.02	.2	.55	11
[illegible]	[illegible]	[illegible]	-.[illegible]03	.042	1.18	3.3	1.36	3.7	.52	12
[illegible]	[illegible]	[illegible]	-.304	.044	.85	-3.2	.86	-2.1	.64	13
[illegible]	[illegible]	[illegible]	1.496	.049	.86	-2.4	.76	-2.5	.59	14
[illegible]	[illegible]	[illegible]	.661	.037	.92	-1.4	.90	-1.3	.66	15
[illegible]	[illegible]	[illegible]	1.196	.037	.89	-1.8	.84	-1.2	.65	16

TABLE 3.1 Math105 1998 equated to 101 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:35 1999 INPUT: 778 PERSONS 15 ITEMS ANALYZED: 774 PERSONS 15 ITEMS 44 CATEGORIES

SUMMARY OF 774 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	14.8	15.0	.28	.44	1.00	.1	1.04	.2
S.D.	7.2	.0	1.20	.14	.43	.9	.62	.8

RMSE .47 ADJ.S.D. 1.10 PERSON SEP 2.35 PERSON SEP REL. .85

MAXIMUM EXTREME SCORE: 3 PERSONS
MINIMUM EXTREME SCORE: 1 PERSONS

SUMMARY OF 15 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	761.4	774.0	.03	.07	1.04	.8	1.04	.3
S.D.	481.5	.0	1.08	.03	.14	3.4	.23	2.9

RMSE .08 ADJ.S.D. 1.08 ITEM SEP 13.90 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math105 1998 equated to 101 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:35 1999 INPUT: 778 PERSONS 15 ITEMS ANALYZED: 774 PERSONS 15 ITEMS 44 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	723	774	-2.941	.153	1.12	1.0	1.40	1.5	.12		1
2	551	774	-1.013A	.090	.92	-1.9	.79	-2.5	.50	.111	2
3	390	774	.221	.081	1.18	5.4	1.23	4.1	.25		3
4	444	774	-.266A	.083	.88	-3.7	.80	-3.5	.54	.122	4
5	511	774	-.586	.085	1.12	3.1	1.15	2.0	.28		5
6	431	774	-.057	.082	.89	-3.4	.87	-2.3	.50		6
7	360	774	.417	.081	1.05	1.6	1.14	2.5	.36		7
8	265	774	1.072	.085	1.36	8.7	1.53	6.9	.07		8
9	769	774	.359A	.052	.96	-.9	.87	-1.6	.60	-.081	9
10	231	774	2.288	.076	.94	-.8	.78	-2.0	.45		10
11	759	774	.366A	.051	1.01	.2	.99	-.1	.58	-.064	11
12	1409	774	-.203A	.042	1.13	2.5	1.19	2.0	.54		12
13	1767	774	-.080	.040	1.22	4.3	1.16	2.7	.52		13
14	1595	774	.185	.036	.83	-3.4	.77	-3.5	.70		14
15	1216	774	.661A	.037	.99	-.1	.90	-1.3	.65	-.056	15

TABLE 3.1 Math109 1998 equated to 101 DROP #10 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 9:43 1999 INPUT: 794 PERSONS 16 ITEMS ANALYZED: 782 PERSONS 15 ITEMS 44 CATEGORIES

SUMMARY OF 782 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	13.8	15.0	.32	.43	1.04	.1	1.02	.1
S.D.	7.4	.0	1.12	.15	.41	.8	.42	.8

RMSE .46 ADJ.S.D. 1.02 PERSON SEP 2.24 PERSON SEP REL. .83

MAXIMUM EXTREME SCORE: 8 PERSONS
MINIMUM EXTREME SCORE: 4 PERSONS

SUMMARY OF 15 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	719.4	782.0	.15	.06	1.02	.4	1.02	.0
S.D.	340.4	.0	.63	.02	.14	2.9	.22	2.2

RMSE .07 ADJ.S.D. .63 ITEM SEP 9.30 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math109 1998 equated to 101 DROP #10 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 9:43 1999 INPUT: 794 PERSONS 16 ITEMS ANALYZED: 782 PERSONS 15 ITEMS 44 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT	PTBIS	DISPLACE	NAME
1	453	782	-.059	.081	1.15	4.7	1.21	3.9	.26		1
2	593	782	-1.013A	.091	.86	-3.2	.84	-1.9	.42		2
3	571	782	-.898	.089	.90	-2.4	.85	-2.0	.44		3
4	495	782	-.266A	.082	.88	-3.9	.83	-3.3	.48		4
5	400	782	.284	.080	1.00	.0	1.00	-.1	.39		5
6	375	782	.444	.080	1.07	2.3	1.09	1.8	.32		6
7	505	782	-.410	.083	1.03	.9	1.01	.2	.35		7
8	346	782	.630	.080	1.03	.9	1.10	1.9	.36		8
9	747	782	.359A	.050	1.00	.1	.90	-1.3	.56		9
10			DELETED								10
11	715	782	.366A	.050	1.00	-.1	.99	.0	.54	.129	11
12	1489	782	-.203A	.041	1.09	1.8	1.28	3.1	.51		12
13	831	782	.867	.040	.93	-1.4	.78	-2.3	.62		13
14	1324	782	.110	.038	1.44	7.5	1.63	3.6	.44		14
15	1206	782	.661A	.035	.99	-.1	.94	-.8	.64		15
16	728	782	1.438	.041	.89	-1.9	.83	-2.1	.60		16

TABLE 3.1 Math111 1998 FIXED TO 101, 105, 109 DROP #25 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 10 9:44 1999 INPUT: 249 PERSONS 35 ITEMS ANALYZED: 249 PERSONS 34 ITEMS 97 CATEGORIES

SUMMARY OF 249 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	29.8	34.0	.28	.27	1.01	.0	1.05	.1
S.D.	12.4	.0	.87	.06	.33	1.0	.50	1.0

RMSE .29 ADJ.S.D. .82 PERSON SEP 2.95 PERSON SEP REL. .90

SUMMARY OF 34 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	218.2	249.0	.09	.12	1.02	.1	1.05	.2
S.D.	136.0	.0	.91	.05	.17	2.2	.26	2.1

RMSE .13 ADJ.S.D. .91 ITEM SEP 7.04 ITEM SEP REL. .98

TABLE 14.1 Math111 1998 FIXED TO 101, 105, 109 DROP #25 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 10 9:44 1999 INPUT: 249 PERSONS 35 ITEMS ANALYZED: 249 PERSONS 34 ITEMS 97 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	206	249	-1.303A	.166	.77	-2.6	.69	-2.2	.36	-.244	1
2	202	249	-1.013A	.156	.78	-3.0	.71	-2.5	.35	-.338	2
3	229	249	-2.941A	.292	1.49	1.8	1.52	1.3	.18	.471	3
4	191	249	-.898A	.152	.84	-2.2	.80	-1.8	.38	-.174	4
5	113	249	.221A	.136	1.08	1.8	1.13	2.0	.25	.224	5
6	146	249	.005A	.137	.95	-1.0	.92	-1.2	.36		6
7	154	249	-.059A	.137	1.07	1.5	1.06	.9	.21	-.202	7
8	176	249	-.997A	.155	1.25	3.0	1.55	3.8	.10	.225	8
9	149	249	-.586A	.145	1.29	4.4	1.35	3.4	.15	.360	9
10	117	249	.284A	.136	1.08	1.9	1.10	1.5	.23		10
11	129	249	.264A	.136	1.18	3.9	1.25	3.7	.11		11
12	139	249	-.057A	.137	.85	-3.4	.85	-2.3	.52		12
13	98	249	.444A	.137	.96	-.9	.92	-1.2	.36	.329	13
14	155	249	-.266A	.139	.89	-2.1	.85	-2.0	.43		14
15	169	249	-.434A	.142	.99	-.1	.92	-.9	.30		15
16	97	249	.417A	.137	.94	-1.3	.93	-1.1	.38	.318	16
17	157	249	-.410A	.141	1.12	2.2	1.12	1.4	.34	.386	17
18	114	249	.630A	.138	1.09	1.9	1.14	2.1	.25	-.146	18
19	84	249	1.072A	.144	1.08	1.4	1.32	3.4	.05	.363	19
20	147	249	.117A	.136	1.00	.1	1.03	.4	.32		20
21	136	249	.359A	.084	.86	-2.2	.75	-2.7	.62		21
22	184	249	.366A	.083	.98	-.3	1.00	.0	.50	-.241	22
23	162	249	.066A	.099	.89	-1.5	.87	-1.7	.54		23
24	80	249	2.288A	.138	1.11	.9	.98	-.1	.51	-.272	24
25			DELETED								25
26	495	249	-.304A	.073	.75	-3.3	.75	-2.6	.63		26
27	223	249	.867A	.068	.86	-1.6	.95	-.3	.56	.075	27
28	403	249	.110A	.061	1.35	3.9	1.60	2.6	.42		28
29	217	249	1.486A	.087	.80	-1.8	.83	-1.1	.50	.218	29
30	497	249	-.203A	.069	1.09	1.1	1.75	5.0	.49	-.159	30
31	583	249	-.080A	.067	1.23	2.6	1.22	2.3	.44		31
32	553	249	.185A	.058	.78	-2.8	.78	-2.3	.68	-.111	32
33	371	249	.661A	.061	1.16	1.6	1.10	.8	.60	-.096	33
34	232	249	1.196A	.061	.98	-.2	.88	-.6	.57	.121	34
35	184	249	1.438A	.075	1.02	.2	.95	-.3	.51		35

TABLE 3.1 Math202 1998 first run — R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:22 1999 INPUT: 772 PERSONS 16 ITEMS ANALYZED: 769 PERSONS 16 ITEMS 47 CATEGORIES

SUMMARY OF 769 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	12.9	16.0	-.13	.41	.98	.0	1.00	0
S.D.	6.8	.0	.99	.12	.40	.9	.46	.8

RMSE .43 ADJ.S.D. .90 PERSON SEP 2.11 PERSON SEP REL. .82

MAXIMUM EXTREME SCORE: 2 PERSONS
MINIMUM EXTREME SCORE: 1 PERSONS

SUMMARY OF 16 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	618.6	769.0	.00	.07	.99	.1	1.00	.3
S.D.	335.8	.0	.86	.02	.13	3.4	.21	3.3

RMSE .07 ADJ.S.D. .86 ITEM SEP 12.49 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math202 1998 first run — R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:22 1999 INPUT: 772 PERSONS 16 ITEMS ANALYZED: 769 PERSONS 16 ITEMS 47 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	517	769	-.982	.084	1.09	2.4	1.20	3.3	.22	1
2	661	769	-2.242	.110	.90	-1.4	.82	-1.5	.32	2
3	234	769	.861	.085	.97	-.9	1.04	.6	.36	3
4	144	769	.489	.081	1.08	2.4	1.14	2.7	.25	4
5	345	769	.097	.079	1.27	8.8	1.43	8.8	.07	5
6	[illegible]	769	.596	.082	.99	-.2	1.10	1.7	.34	6
7	494	769	-.824	.082	.95	-1.4	.94	-1.2	.36	7
8	[illegible]	769	-.176	.079	.97	-1.2	.92	-1.9	.38	8
9	[illegible]	769	-.723	.054	.96	-.9	.97	-.5	.46	9
10	[illegible]	769	.932	.058	1.13	2.5	1.16	1.9	.35	10
11	[illegible]	769	.308	.053	.70	-8.0	.63	-7.0	.68	11
12	[illegible]	769	.783	.045	1.09	1.4	1.12	1.2	.46	12
13	[illegible]	769	-.166	.040	1.05	1.1	1.06	.9	.51	13
14	[illegible]	769	-.531	.038	.98	-.4	1.07	.6	.50	14
15	[illegible]	769	1.110	.041	.77	-3.8	.56	-4.0	.62	15
16	[illegible]	769	.466	.035	1.03	.6	.92	-1.0	.57	16

TABLE 3.1 Math206 1998 equated to 202 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:32 1999 INPUT: 772 PERSONS 15 ITEMS ANALYZED: 770 PERSONS 15 ITEMS 44 CATEGORIES

SUMMARY OF 770 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	11.4	15.0	-.07	.46	.95	-.1	.97	.0
S.D.	6.7	.0	1.14	.15	.47	.9	.67	.9

RMSE .49 ADJ.S.D. 1.03 PERSON SEP 2.13 PERSON SEP REL. .82

MAXIMUM EXTREME SCORE: 1 PERSONS
MINIMUM EXTREME SCORE: 1 PERSONS

SUMMARY OF 15 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	583.3	770.0	.03	.07	.96	-.9	.97	-.6
S.D.	308.2	.0	1.25	.03	.13	3.0	.26	3.0

RMSE .08 ADJ.S.D. 1.25 ITEM SEP 16.28 ITEM SEP REL. 1.00

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math206 1998 equated to 202 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:32 1999 INPUT: 772 PERSONS 15 ITEMS ANALYZED: 770 PERSONS 15 ITEMS 44 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	243	770	.904	.086	1.12	3.0	1.28	3.7	.26		1
2	666	770	-2.242A	.111	.86	-2.1	.65	-2.7	.32		2
3	399	770	-.136	.081	.86	-4.7	.81	-4.1	.50		3
4	299	770	.489A	.082	1.13	3.7	1.20	3.3	.26		4
5	468	770	-.597	.082	.92	-2.4	.90	-1.8	.43		5
6	631	770	-1.918	.102	1.08	1.3	1.21	1.7	.20		6
7	643	770	-2.047	.105	.93	-1.0	.83	-1.4	.32		7
8	142	770	1.767	.101	1.12	2.0	1.55	4.1	.19		8
9	1055	770	-.723A	.056	.86	-3.0	.82	-2.5	.47	-.168	9
10	291	770	1.373	.064	.96	-.5	.88	-.8	.51		10
11	628	770	.308A	.054	.69	-7.9	.61	-6.7	.70		11
12	591	770	.783A	.045	1.00	.0	1.14	1.4	.52	.076	12
13	706	770	1.257	.040	1.11	1.7	.95	-.3	.57		13
14	1389	770	.122	.033	.98	-.4	1.09	.9	.60		14
15	598	770	1.110A	.040	.77	-3.8	.60	-3.4	.65	.111	15

TABLE 3.1 Math210 1998 equated to 202 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:50 1999 INPUT: 782 PERSONS 16 ITEMS ANALYZED: 778 PERSONS 16 ITEMS 47 CATEGORIES

SUMMARY OF 778 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	12.4	16.0	-.10	.44	.99	.0	.98	.0
S.D.	7.2	.0	1.14	.16	.42	.9	.56	.8

RMSE .46 ADJ.S.D. 1.04 PERSON SEP 2.24 PERSON SEP REL. .83

MAXIMUM EXTREME SCORE: 1 PERSONS
MINIMUM EXTREME SCORE: 3 PERSONS

SUMMARY OF 16 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	602.9	778.0	.04	.07	.97	-.6	.98	-.4
S.D.	263.7	.0	.99	.02	.14	2.8	.25	2.7

RMSE .07 ADJ.S.D. .99 ITEM SEP 13.95 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math210 1998 equated to 202 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:50 1999 INPUT: 782 PERSONS 16 ITEMS ANALYZED: 778 PERSONS 16 ITEMS 47 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	511	778	-.882	.084	.98	-.6	1.02	.4	.36		1
2	676	778	-2.242A	.110	.86	-2.1	.70	-2.4	.33	-.151	2
3	115	778	1.078	.088	1.14	3.3	1.50	5.3	.21		3
4	[illegible]	[illegible]	.489A	.082	1.10	3.1	1.18	3.0	.25	.154	4
5	[illegible]	[illegible]	.899	.085	.95	-1.4	.94	-.8	.42		5
6	[illegible]	[illegible]	-1.594	.095	.86	-2.8	.72	-3.3	.44		6
7	[illegible]	[illegible]	.020	.080	1.03	1.0	1.14	2.7	.38		7
8	[illegible]	[illegible]	.476	.082	.94	-1.9	.93	-1.3	.44		8
9	[illegible]	[illegible]	-.723A	.055	1.02	.5	1.02	.3	.44		9
10	[illegible]	[illegible]	-.962	.057	.99	-.3	1.00	.0	.45		10
11	[illegible]	[illegible]	.308A	.053	.76	-6.2	.69	-5.1	.68	-.098	11
12	[illegible]	[illegible]	.783A	.044	.97	-.5	1.05	.5	.52		12
13	[illegible]	[illegible]	.497	.040	1.03	.6	.98	-.1	.57		13
14	[illegible]	[illegible]	.354	.040	.83	-3.6	.71	-3.4	.66		14
15	[illegible]	[illegible]	1.110A	.039	.77	-3.9	.57	-3.6	.63	.090	15
16	[illegible]	[illegible]	1.076	.037	1.32	4.9	1.45	2.0	.48		16

TABLE 3.1 Math222 1998 EQUATED TO 202, 206, 210 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 9:34 1999 INPUT: 245 PERSONS 35 ITEMS ANALYZED: 245 PERSONS 35 ITEMS 100 CATEGORIES

SUMMARY OF 245 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	25.6	35.0	-.12	.27	1.06	.2	1.01	.0
S.D.	12.9	.0	.84	.06	.30	.9	.31	.9

RMSE .28 ADJ.S.D. .79 PERSON SEP 2.82 PERSON SEP REL. .89

SUMMARY OF 35 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	179.1	245.0	.05	.12	1.03	.2	1.01	-.1
S.D.	105.9	.0	1.01	.04	.17	2.1	.23	1.9

RMSE .13 ADJ.S.D. 1.00 ITEM SEP 7.82 ITEM SEP REL. .98

TABLE 14.1 Math222 1998 EQUATED TO 202, 206, 210 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 9:34 1999 INPUT: 245 PERSONS 35 ITEMS ANALYZED: 245 PERSONS 35 ITEMS 100 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	177	245	-.982A	.146	.98	-.4	1.02	.3	.22	-.207	1
2	72	245	.904A	.150	1.07	1.0	1.08	.8	.23		2
3	219	245	-2.242A	.196	.74	-2.1	.53	-2.7	.33	-.242	3
4	157	245	-.882A	.144	1.02	.3	.98	-.2	.34		4
5	63	245	1.078A	.155	1.05	.7	1.20	1.7	.23		5
6	135	245	-.136A	.137	.89	-2.6	.86	-2.4	.44	-.194	6
7	64	245	.861A	.149	.84	-2.5	.90	-1.0	.43	.184	7
8	111	245	.097A	.138	1.31	6.2	1.39	5.8	-.02	-.167	8
9	133	245	-.597A	.140	.98	-.5	.96	-.5	.42	.240	9
10	95	245	.489A	.142	1.01	.3	1.01	.2	.33		10
11	78	245	.899A	.150	1.16	2.3	1.22	2.1	.18		11
12	186	245	-1.594A	.164	.99	-.1	.86	-1.0	.39		12
13	199	245	-1.918A	.178	1.14	1.3	1.19	1.1	.18		13
14	94	245	.596A	.144	1.05	.9	1.10	1.3	.32	-.151	14
15	177	245	-.824A	.143	.86	-2.6	.83	-2.1	.35	-.346	15
16	193	245	-2.047A	.185	1.21	1.7	1.01	.1	.38	.398	16
17	111	245	.020A	.137	.87	-3.0	.84	-2.8	.51		17
18	91	245	.476A	.142	.90	-1.8	.88	-1.6	.40	.167	18
19	5[illegible]	245	1.767A	.184	1.32	2.6	1.48	2.5	.16	-.300	19
20	111	245	-.176A	.137	.90	-2.2	.88	-2.1	.47	.234	20
21	5[illegible]	245	-.723A	.092	1.11	1.4	1.14	1.4	.30		21
22	176	245	.308A	.091	.74	-3.9	.68	-3.8	.70	.131	22
23	103	245	.932A	.102	1.08	.9	1.25	1.8	.32	.210	23
24	71	245	1.373A	.117	.91	-.7	.69	-1.5	.50		24
25	389	245	-.962A	.095	.88	-1.5	.73	-2.3	.42	-.435	25
26	334	245	-.166A	.069	1.00	.0	.92	-.8	.59	.180	26
27	162	245	.783A	.080	1.10	.9	1.21	1.3	.46		27
28	270	245	.497A	.070	1.42	4.2	1.50	3.0	.46	-.224	28
29	463	245	-.531A	.064	1.28	3.1	1.23	1.2	.43		29
30	239	245	.354A	.069	.99	.0	1.03	.3	.57	.091	30
31	125	245	1.110A	.074	.95	-.3	.66	-1.8	.54	.305	31
32	157	245	1.257A	.070	.90	-.9	.78	-.9	.57	.137	32
33	449	245	.122A	.055	1.03	.3	.93	-.4	.64	-.205	33
34	233	245	1.076A	.067	1.43	3.3	1.39	1.2	.58	-.300	34
35	257	245	.466A	.060	1.07	.8	.94	-.4	.60	.240	35

TABLE 3.1 Math303 1998 first run R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:42 1999 INPUT: 774 PERSONS 16 ITEMS ANALYZED: 772 PERSONS 16 ITEMS 47 CATEGORIES

SUMMARY OF 772 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	13.2	16.0	-.06	.41	1.07	.2	1.03	.1
S.D.	7.0	.0	1.02	.14	.44	.9	.57	.9

RMSE .43 ADJ.S.D. .92 PERSON SEP 2.14 PERSON SEP REL. .82

MINIMUM EXTREME SCORE: 2 PERSONS

SUMMARY OF 16 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	638.7	772.0	.00	.07	1.00	-.6	1.03	-.3
S.D.	273.7	.0	.96	.02	.20	3.8	.37	3.3

RMSE .07 ADJ.S.D. .95 ITEM SEP 13.55 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math303 1998 first run R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:42 1999 INPUT: 774 PERSONS 16 ITEMS ANALYZED: 772 PERSONS 16 ITEMS 47 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	466	772	-.425	.081	.98	-.7	.96	-.8	.38	1
2	651	772	-1.934	.107	.91	-1.3	.79	-2.0	.35	2
3	617	772	-1.577	.098	1.01	.3	1.05	.5	.27	3
4	426	772	-.131	.079	1.09	3.1	1.13	2.9	.25	4
5	383	772	.099	.079	.87	-5.2	.82	-4.4	.50	5
6	258	772	.901	.083	.97	-.9	1.16	2.5	.36	6
7	638	772	-1.790	.103	.95	-.8	.90	-1.0	.33	7
8	198	772	.654	.081	.92	-2.7	.94	-1.2	.43	8
9	748	772	.160	.047	.82	-4.8	.73	-3.4	.58	9
10	334	772	1.160	.055	.95	-.9	.74	-1.8	.48	10
11	488	772	-.151	.051	.81	-5.0	.75	-4.3	.59	11
12	647	772	.804	.039	1.01	.2	1.14	.9	.51	12
13	931	772	.373	.036	1.66	9.9	2.30	8.1	.25	13
14	[illegible]	772	.190	.040	.78	-5.3	.72	-4.7	.64	14
15	[illegible]	772	.545	.035	1.21	4.1	1.19	2.5	.46	15
16	645	772	1.121	.041	1.02	.3	1.12	1.4	.46	16

TABLE 3.1 Math307 1998 equated to 303 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:48 1999 INPUT: 778 PERSONS 15 ITEMS ANALYZED: 776 PERSONS 15 ITEMS 44 CATEGORIES

SUMMARY OF 776 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	11.8	15.0	-.06	.43	.99	.0	1.01	.0
S.D.	6.7	.0	1.01	.15	.43	.8	.64	.9

RMSE .45 ADJ.S.D. .91 PERSON SEP 2.00 PERSON SEP REL. .80

MINIMUM EXTREME SCORE: 2 PERSONS

SUMMARY OF 15 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	612.4	776.0	.12	.07	.98	-.7	1.01	-.3
S.D.	306.6	.0	1.03	.03	.15	3.6	.26	3.1

RMSE .07 ADJ.S.D. 1.03 ITEM SEP 14.04 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math307 1998 equated to 303 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:48 1999 INPUT: 778 PERSONS 15 ITEMS ANALYZED: 776 PERSONS 15 ITEMS 44 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	586	776	-1.416	.092	1.03	.6	1.11	1.4	.27		1
2	642	776	-1.934A	.104	.86	-2.3	.68	-3.5	.41		2
3	449	776	-.376	.080	.88	-4.0	.85	-3.6	.49		3
4	597	776	-.131A	.079	1.15	4.8	1.20	4.5	.21		4
5	74	776	2.534	.126	1.04	.5	1.52	2.7	.09		5
6	[illegible]	776	-.300	.080	.92	-2.8	.89	-2.7	.45		6
7	247	776	.862	.083	1.01	.4	1.16	2.4	.29		7
8	[illegible]	776	-.180	.079	1.10	3.2	1.10	2.4	.28		8
9	671	776	.160A	.048	.68	-8.8	.61	-5.4	.63	.085	9
10	860	776	-.228	.049	.86	-3.4	.76	-3.0	.59		10
11	548	776	-.151A	.051	.82	-4.4	.77	-4.1	.61		11
12	594	776	.804A	.040	.96	-.7	.90	-.6	.50		12
13	[illegible]	776	.307	.031	.94	-1.0	.96	-.3	.60		13
14	569	776	1.330	.042	1.24	3.9	1.50	3.9	.34		14
15	1197	776	.545A	.036	1.17	3.4	1.16	2.0	.47	-.084	15

TABLE 3.1 Math311 1998 equated to 303 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:52 1999 INPUT: 787 PERSONS 16 ITEMS ANALYZED: 781 PERSONS 16 ITEMS 47 CATEGORIES

SUMMARY OF 781 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	13.5	16.0	.10	.40	.98	.0	.96	.0
S.D.	7.2	.0	1.00	.13	.38	.9	.40	.7

RMSE .42 ADJ.S.D. .91 PERSON SEP 2.15 PERSON SEP REL. .82

MAXIMUM EXTREME SCORE: 2 PERSONS
MINIMUM EXTREME SCORE: 4 PERSONS

SUMMARY OF 16 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	658.9	781.0	.15	.06	.98	-.4	.96	-.2
S.D.	367.6	.0	.80	.02	.14	3.5	.19	2.7

RMSE .07 ADJ.S.D. .80 ITEM SEP 11.78 ITEM SEP REL. .99

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math311 1998 equated to 303 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 8:52 1999 INPUT: 787 PERSONS 16 ITEMS ANALYZED: 781 PERSONS 16 ITEMS 47 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	[illegible]	781	-.571	.082	.87	-4.0	.82	-3.8	.48		1
2	[illegible]	781	-1.934A	.107	.79	-3.2	.71	-2.8	.32	-.231	2
3	[illegible]	781	.476	.079	.98	-.6	1.02	.6	.37		3
4	[illegible]	781	-.131A	.079	1.22	7.0	1.28	6.0	.15	.191	4
5	[illegible]	781	-1.004	.087	.99	-.1	.97	-.4	.33		5
6	[illegible]	781	.935	.082	.98	-.4	1.09	1.5	.34		6
7	[illegible]	781	-.125	.079	1.14	4.6	1.14	3.2	.21		7
8	[illegible]	781	.736	.081	.99	-.2	1.04	.7	.34		8
9	[illegible]	781	.160A	.048	.70	-8.1	.68	-4.5	.62		9
10	[illegible]	781	.368	.052	.97	-.8	.94	-1.0	.50		10
11	[illegible]	781	-.151A	.051	.93	-1.7	.84	-2.7	.61	.125	11
12	[illegible]	781	.804A	.038	1.12	2.2	1.20	1.4	.47	-.062	12
13	[illegible]	781	.951	.042	.83	-3.6	.78	-2.5	.60		13
14	[illegible]	781	1.335	.045	.90	-1.5	.65	-1.8	.47		14
15	[illegible]	781	.545A	.035	1.15	2.9	1.19	2.7	.49		15
16	[illegible]	781	.013	.034	1.06	1.1	1.01	.2	.56		16

TABLE 3.1 Math333 1998 EQUATED TO 303, 307, 311 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 9:36 1999 INPUT: 242 PERSONS 35 ITEMS ANALYZED: 242 PERSONS 35 ITEMS 100 CATEGORIES

SUMMARY OF 242 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	25.4	35.0	.00	.27	1.10	.3	1.03	.1
S.D.	12.3	.0	.78	.06	.31	.9	.31	.9

RMSE .27 ADJ.S.D. .73 PERSON SEP 2.69 PERSON SEP REL. .88

SUMMARY OF 35 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	175.7	242.0	.16	.12	1.01	-.1	1.03	-.2
S.D.	99.9	.0	.94	.04	.23	2.5	.41	2.2

RMSE .13 ADJ.S.D. .93 ITEM SEP 7.33 ITEM SEP REL. .98

TABLE 14.1 Math333 1998 EQUATED TO 303, 307, 311 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 9:36 1999 INPUT: 242 PERSONS 35 ITEMS ANALYZED: 242 PERSONS 35 ITEMS 100 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	207	242	-1.934A	.187	.88	-1.0	.70	-1.8	.35		1
2	147	242	-.425A	.139	.94	-1.2	.92	-1.2	.37		2
3	201	242	-1.416A	.163	.87	-1.5	.83	-1.4	.21	-.328	3
4	142	242	-.571A	.141	.97	-.5	.95	-.6	.40	.157	4
5	126	242	-.131A	.137	1.07	1.6	1.10	1.7	.19		5
6	85	242	.476A	.140	.89	-2.3	.87	-2.0	.40	.198	6
7	155	242	-.376A	.139	.81	-4.2	.78	-3.9	.49	-.242	7
8	190	242	-1.577A	.170	1.07	.7	1.08	.6	.24		8
9	116	242	.099A	.137	.87	-3.1	.84	-3.0	.48		9
10	14	242	2.534A	.229	.71	-1.8	.87	-.5	.07	.495	10
11	166	242	-1.004A	.150	.95	-.7	.86	-1.5	.43		11
12	86	242	.935A	.148	.99	-.2	1.00	.1	.44	-.229	12
13	122	242	-.300A	.138	1.00	-.1	.97	-.5	.37	.252	13
14	70	242	.901A	.147	.91	-1.6	.90	-1.2	.37		14
15	105	242	-1.790A	.180	.93	-.6	.97	-.2	.20		15
16	85	242	.862A	.146	.99	-.1	.98	-.2	.38		16
17	149	242	-.125A	.137	1.04	1.0	1.04	.8	.24	-.357	17
18	84	242	.736A	.143	.97	-.5	1.04	.5	.35		18
19	104	242	-.180A	.137	1.06	1.5	1.05	.9	.31	.446	19
20	113	242	.654A	.142	1.10	1.8	1.16	2.1	.35	-.441	20
21	131	242	.160A	.082	.86	-2.2	.80	-2.0	.54	-.270	21
22	129	242	-.151A	.087	.99	-.2	.95	-.5	.54	.292	22
23	85	242	1.160A	.102	.93	-.6	.75	-1.1	.44		23
24	261	242	-.228A	.082	.78	-3.4	.86	-1.3	.61	.144	24
25	179	242	.368A	.090	1.03	.5	.99	-.1	.44	.155	25
26	366	242	.373A	.063	2.11	9.9	3.15	8.2	.15	-.599	26
27	179	242	.951A	.076	.93	-.7	.70	-2.1	.62		27
28	163	242	.804A	.070	1.14	1.4	1.45	1.8	.40		28
29	94	242	1.335A	.092	1.04	.3	.85	-.3	.50	-.170	29
30	328	242	.190A	.068	.69	-4.6	.66	-4.0	.68		30
31	312	242	.545A	.061	1.14	1.7	1.13	1.2	.49	.170	31
32	320	242	.307A	.052	1.17	1.9	1.17	1.0	.52	.212	32
33	165	242	1.121A	.077	.96	-.3	1.19	1.3	.41		33
34	124	242	1.330A	.076	.96	-.4	.95	-.3	.43	.344	34
35	526	242	.013A	.056	1.42	4.5	1.50	4.1	.40	-.144	35

TABLE 3.1 Math404 1998 first run — R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 10 9:15 1999 INPUT: 779 PERSONS 16 ITEMS ANALYZED: 774 PERSONS 16 ITEMS 47 CATEGORIES

SUMMARY OF 774 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	15.1	16.0	.20	.42	.99	.0	1.04	.1
S.D.	7.8	.0	1.12	.18	.47	.9	.96	.8

RMSE .45 ADJ.S.D. 1.03 PERSON SEP 2.27 PERSON SEP REL. .84

MAXIMUM EXTREME SCORE: 5 PERSONS

SUMMARY OF 16 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	730.9	774.0	.00	.07	1.01	.0	1.04	-.2
S.D.	406.8	.0	1.26	.04	.11	2.5	.34	2.3

RMSE .08 ADJ.S.D. 1.26 ITEM SEP 15.54 ITEM SEP REL. 1.00

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math404 1998 first run — R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Mar 10 9:15 1999 INPUT: 779 PERSONS 16 ITEMS ANALYZED: 774 PERSONS 16 ITEMS 47 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	NAME
1	[illegible]	774	-.151	.081	.85	-5.2	.79	-4.3	.53	1
2	[illegible]	774	-3.413	.180	1.07	.5	1.17	.6	.15	2
3	[illegible]	774	-1.524	.100	1.06	1.0	1.02	.2	.30	3
4	[illegible]	774	-.283	.082	.93	-2.2	.86	-2.8	.45	4
[illegible]	[illegible]	774	2.508	.115	1.11	1.4	2.22	5.8	.12	5
[illegible]	[illegible]	774	-.243	.081	1.01	.3	.99	-.2	.39	6
[illegible]	[illegible]	774	-.184	.081	.92	-2.5	.91	-1.7	.46	7
[illegible]	[illegible]	774	.586	.080	1.08	2.6	1.11	2.0	.29	8
[illegible]	[illegible]	774	.002	.048	1.22	4.8	1.27	2.3	.41	9
[illegible]	[illegible]	774	-.960	.061	.97	-.6	.87	-1.4	.49	10
[illegible]	[illegible]	774	1.573	.062	.86	-2.1	.76	-1.4	.48	11
[illegible]	[illegible]	774	.663	.041	1.23	4.2	1.18	2.1	.48	12
[illegible]	[illegible]	774	.045	.038	.97	-.5	.84	-1.5	.60	13
[illegible]	[illegible]	774	.465	.040	1.02	.5	.99	-.1	.56	14
[illegible]	[illegible]	774	.123	.030	.94	-1.1	.89	-.6	.63	15
[illegible]	[illegible]	774	.770	.033	.92	-1.4	.75	-1.9	.61	16

TABLE 3.1 Math408 1998 equated to 404 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 9:24 1999 INPUT: 789 PERSONS 15 ITEMS ANALYZED: 781 PERSONS 15 ITEMS 44 CATEGORIES

SUMMARY OF 781 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	13.8	15.0	.18	.41	1.03	.1	1.06	.1
S.D.	6.6	.0	.97	.13	.51	.9	.86	.8

RMSE .43 ADJ.S.D. .87 PERSON SEP 2.01 PERSON SEP REL. .80

MAXIMUM EXTREME SCORE: 6 PERSONS
MINIMUM EXTREME SCORE: 2 PERSONS

SUMMARY OF 15 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	716.6	781.0	.14	.07	1.01	-.4	1.09	.0
S.D.	472.5	.0	1.18	.04	.13	3.1	.33	3.3

RMSE .08 ADJ.S.D. 1.18 ITEM SEP 14.57 ITEM SEP REL. 1.00

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math408 1998 equated to 404 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 9:24 1999 INPUT: 789 PERSONS 15 ITEMS ANALYZED: 781 PERSONS 15 ITEMS 44 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	176	781	1.640	.092	1.22	4.1	1.87	8.3	.02		1
2	744	781	-3.413A	.188	1.18	1.1	1.74	2.4	.11		2
3	559	781	-.895	.086	.85	-3.8	.79	-3.5	.46		3
4	493	781	-.283A	.079	.91	-3.3	.89	-2.6	.40	-.139	4
5	304	781	.727	.080	.89	-4.0	.90	-2.1	.46		5
6	457	781	-.211	.079	.87	-4.6	.82	-4.3	.47		6
7	380	781	.259	.078	.90	-3.9	.87	-3.2	.45		7
8	190	781	1.525	.090	1.08	1.7	1.23	2.7	.19		8
9	93[illegible]	781	.002A	.047	1.23	5.3	1.29	3.0	.32	-.154	9
10	848	781	.030	.051	.92	-2.1	.90	-1.8	.50		10
11	257	781	1.573A	.062	.94	-.9	.69	-2.2	.45		11
12	78[illegible]	781	.663A	.041	1.16	2.9	1.25	3.1	.43		12
13	1434	781	.307	.029	.97	-.5	.90	-.7	.57		13
14	1632	781	.049	.045	1.06	1.2	1.05	1.0	.43		14
15	1567	781	.123A	.029	1.05	.9	1.09	.6	.54	.103	15

TABLE 3.1 Math412 1998 equated to 404 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 9:25 1999 INPUT: 784 PERSONS 16 ITEMS ANALYZED: 782 PERSONS 16 ITEMS 47 CATEGORIES

SUMMARY OF 782 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	12.2	16.0	.21	.42	1.00	.1	.96	.1
S.D.	7.3	.0	1.03	.16	.45	.9	.71	.7

RMSE .45 ADJ.S.D. .92 PERSON SEP 2.04 PERSON SEP REL. .81

MAXIMUM EXTREME SCORE: 2 PERSONS

SUMMARY OF 16 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	597.9	782.0	.28	.07	1.01	.0	.96	-.4
S.D.	313.2	.0	1.20	.04	.11	2.3	.18	1.9

RMSE .08 ADJ.S.D. 1.20 ITEM SEP 15.19 ITEM SEP REL. 1.00

SUMMARY OF MEASURED STEPS

TABLE 14.1 Math412 1998 equated to 404 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 9:25 1999 INPUT: 784 PERSONS 16 ITEMS ANALYZED: 782 PERSONS 16 ITEMS 47 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	479	782	-.302	.080	.96	-1.3	.90	-2.2	.39		1
2	750	782	-3.413A	.186	1.02	.2	1.11	.5	.13		2
3	584	782	-1.051	.089	1.03	.6	1.03	.4	.26		3
4	491	782	-.283A	.080	.88	-4.0	.81	-4.1	.45	-.108	4
5	200	782	1.507	.089	.93	-1.7	.89	-1.5	.42		5
6	371	782	.378	.079	1.03	1.1	1.03	.7	.33		6
7	456	782	-.153	.080	.95	-1.9	.91	-2.0	.40		7
8	287	782	.958	.082	.93	-2.1	.96	-.8	.44		8
9	943	782	.002A	.048	1.22	4.9	1.23	2.3	.35	-.164	9
10	511	782	.966	.054	1.08	1.7	1.02	.2	.43		10
11	[illegible]	782	1.573A	.061	.88	-1.9	.65	-2.4	.52		11
12	911	782	.663A	.041	1.15	2.7	1.15	2.0	.47	.072	12
13	632	782	1.030	.041	1.05	.8	.95	-.3	.55		13
14	396	782	1.213	.046	1.20	3.3	1.31	3.5	.44		14
15	1552	782	.123A	.030	.92	-1.3	.75	-1.7	.62	.149	15
16	649	782	1.265	.037	.90	-1.4	.72	-1.3	.61		16

TABLE 3.1 Math444 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 10:44 1999 INPUT: 243 PERSONS 35 ITEMS ANALYZED: 243 PERSONS 35 ITEMS 100 CATEGORIES

SUMMARY OF 243 MEASURED (NON-EXTREME) PERSONS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	28.3	35.0	.21	.27	1.08	.3	1.10	.2
S.D.	13.2	.0	.84	.07	.31	.8	.49	.8

RMSE .27 ADJ.S.D. .80 PERSON SEP 2.91 PERSON SEP REL. .89

SUMMARY OF 35 MEASURED (NON-EXTREME) ITEMS

	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFIT
MEAN	196.8	243.0	.26	.12	1.04	.1	1.10	.2
S.D.	119.8	.0	1.06	.06	.23	2.4	.43	2.5

RMSE .14 ADJ.S.D. 1.05 ITEM SEP 7.70 ITEM SEP REL. .98

TABLE 14.1 Math444 R MODEL "BIGSTEPS" RASCH ANALYSIS VER. 2.27
Apr 1 10:44 1999 INPUT: 243 PERSONS 35 ITEMS ANALYZED: 243 PERSONS 35 ITEMS 100 CATEGORIES

ITEMS STATISTICS: ENTRY ORDER

NUM	SCORE	COUNT	MEASURE	ERROR	MNSQ	INFIT	MNSQ	OUTFT	PTBIS	DISPLACE	NAME
1	238	243	-3.413A	.352	.61	-1.4	.42	-1.5	.14	-.567	1
2	129	243	-.151A	.139	.85	-3.3	.80	-3.3	.57	.195	2
3	51	243	1.640A	.163	1.09	1.0	1.47	3.1	.08		3
4	165	243	-.302A	.141	1.01	.3	.98	-.3	.25	-.299	4
5	161	243	-.895A	.153	.91	-1.2	.81	-1.9	.58	.295	5
6	197	243	-1.051A	.158	.75	-3.5	.64	-3.4	.40	-.347	6
7	211	243	-1.524A	.177	1.02	.2	.95	-.3	.23		7
8	165	243	-.283A	.141	.80	-4.2	.74	-4.0	.48	-.315	8
9	73	243	1.507A	.158	1.09	1.1	1.01	.1	.40	-.290	9
10	57	243	2.508A	.209	1.91	4.9	2.37	4.5	.27	-.887	10
11	91	243	.727A	.141	.80	-4.4	.77	-3.5	.53	.266	11
12	166	243	-.243A	.140	.92	-1.7	.88	-1.7	.33	-.369	12
13	162	243	-.211A	.140	.83	-3.5	.79	-3.4	.45	-.322	13
14	115	243	.378A	.138	1.00	-.1	.98	-.2	.34	-.199	14
15	137	243	.259A	.138	.88	-2.8	.85	-2.7	.47	-.178	15
16	151	243	-.153A	.139	.98	-.4	.99	-.2	.32	-.157	16
17	174	243	-.184A	.140	.99	-.1	.96	-.6	.51	.571	17
18	112	243	.958A	.144	1.14	2.4	1.22	2.5	.27	-.325	18
19	99	243	.586A	.139	1.13	2.8	1.26	3.6	.15		19
20	59	243	1.525A	.159	1.08	1.0	1.36	2.6	.14		20
21	307	243	-.960A	.106	1.07	.8	1.00	.1	.45	.116	21
22	162	243	.002A	.082	1.50	6.1	2.20	7.0	.14	.122	22
23	273	243	.030A	.090	.90	-1.4	.90	-1.2	.46		23
24	87	243	1.573A	.111	1.15	1.2	1.00	.1	.48	-.184	24
25	118	243	.966A	.094	.85	-2.0	.84	-1.4	.42	.332	25
26	377	243	.045A	.063	.89	-1.4	.95	-.3	.63	.171	26
27	198	243	1.030A	.072	1.23	2.1	1.26	1.2	.46	-.203	27
28	258	243	.663A	.071	1.23	2.5	1.21	1.6	.47		28
29	154	243	1.213A	.083	1.37	3.1	1.34	2.3	.41	.098	29
30	338	243	.485A	.067	1.14	1.7	1.11	.9	.52	-.201	30
31	483	243	.123A	.051	1.10	1.1	1.40	1.6	.61	.182	31
32	154	243	1.265A	.066	.93	-.5	.64	-1.0	.55		32
33	411	243	.307A	.051	1.13	1.4	2.25	4.7	.57	.182	33
34	253	243	.770A	.055	.99	-.1	.92	-.3	.56	.160	34
35	537	243	.049A	.081	1.25	2.6	1.24	2.6	.38	-.110	35

Appendix E

Item Analysis for English Language Arts

Item Statistics for ELA Form 101 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.03	.01	.88	.08	.00	.00	0.88	0.30	-1.824
2	M	.00	.00	.02	.78	.10	.10	.00	.00	0.78	0.26	-0.976
3	M	.00	.00	.91	.03	.01	.04	.00	.00	0.91	0.27	-2.268
4	M	.00	.00	.92	.02	.05	.01	.00	.00	0.92	0.28	-2.383
5	M	.00	.00	.07	.76	.12	.05	.00	.00	0.76	0.33	-0.860
6	M	.00	.00	.02	.03	.93	.03	.00	.00	0.93	0.29	-2.453
7	M	.01	.00	.03	.11	.77	.08	.00	.00	0.77	0.37	-1.010
8	M	.02	.00	.59	.09	.25	.05	.00	.00	0.59	0.25	-0.070
9	M	.02	.00	.03	.87	.07	.01	.00	.00	0.87	0.36	-1.499
10	M	.01	.00	.77	.15	.03	.03	.00	.00	0.77	0.42	-0.913
11	M	.02	.00	.06	.21	.03	.69	.00	.00	0.69	0.32	-0.355
12	M	.01	.00	.82	.06	.07	.03	.00	.00	0.82	0.42	-1.722
13	M	.02	.00	.11	.06	.03	.78	.00	.00	0.78	0.34	-0.843
14	M	.03	.00	.03	.07	.83	.04	.00	.00	0.83	0.43	-1.452
15	M	.03	.00	.06	.72	.04	.15	.00	.00	0.72	0.39	-0.427
16	M	.04	.00	.05	.88	.02	.02	.00	.00	0.88	0.39	-2.117
17	O	.00	.02	.08	.24	.35	.22	.09	.00	2.95	0.49	0.999
18	O	.00	.03	.21	.36	.27	.09	.02	.00	2.25	0.46	1.556

Item Statistics for ELA Form 102 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.10	.65	.23	.02	.00	.00	0.65	0.25	0.691
2	M	.00	.00	.91	.06	.02	.01	.00	.00	0.91	0.27	-1.309
3	M	.00	.00	.02	.09	.01	.88	.00	.00	0.88	0.29	-0.971
4	M	.00	.00	.83	.05	.08	.04	.00	.00	0.83	0.32	-0.568
5	M	.00	.00	.03	.02	.11	.84	.00	.00	0.84	0.24	-0.608
6	M	.00	.00	.04	.90	.01	.05	.00	.00	0.90	0.36	-1.270
7	O	.00	.01	.05	.11	.31	.30	.19	.03	3.53	0.52	1.094
8	O	.00	.05	.15	.32	.35	.10	.03	.00	2.39	0.45	1.903

Item Statistics for ELA Form 103 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.12	.65	.20	.02	.00	.00	0.65	0.27	0.691
2	M	.00	.00	.90	.07	.02	.01	.00	.00	0.90	0.24	-1.309
3	M	.00	.00	.02	.07	.01	.90	.00	.00	0.90	0.24	-0.971
4	M	.00	.00	.86	.04	.08	.02	.00	.00	0.86	0.30	-0.568
5	M	.00	.00	.02	.03	.12	.82	.00	.00	0.82	0.23	-0.608
6	M	.00	.00	.03	.90	.02	.05	.00	.00	0.90	0.34	-1.270
7	M	.01	.00	.22	.03	.73	.01	.00	.00	0.73	0.30	0.259
8	M	.01	.00	.06	.03	.03	.87	.00	.00	0.87	0.42	-0.830
9	M	.01	.00	.05	.81	.06	.07	.00	.00	0.81	0.43	-0.359
10	M	.01	.00	.02	.02	.92	.02	.00	.00	0.92	0.40	-1.536
11	M	.01	.00	.09	.03	.83	.03	.00	.00	0.83	0.50	-0.530
12	M	.02	.00	.81	.05	.09	.02	.00	.00	0.81	0.49	-0.345
13	M	.02	.00	.06	.02	.03	.88	.00	.00	0.88	0.46	-0.928
14	M	.02	.00	.14	.59	.20	.04	.00	.00	0.59	0.34	1.065
15	M	.02	.00	.73	.04	.02	.20	.00	.00	0.73	0.45	0.281
16	M	.02	.00	.09	.16	.09	.63	.00	.00	0.63	0.24	0.833
17	O	.00	.02	.03	.10	.26	.37	.17	.05	3.60	0.55	1.094
18	O	.00	.08	.13	.28	.32	.13	.03	.01	2.42	0.51	2.635

Item Statistics for ELA Form 104 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.03	.05	.09	.83	.00	.00	0.83	0.33	-0.739
2	M	.00	.00	.07	.02	.90	.01	.00	.00	0.90	0.18	-1.465
3	M	.00	.00	.86	.11	.00	.03	.00	.00	0.86	0.26	-0.961
4	M	.00	.00	.16	.07	.06	.71	.00	.00	0.71	0.38	0.122
5	M	.00	.00	.63	.25	.06	.06	.00	.00	0.63	0.31	0.559
6	M	.00	.00	.14	.06	.60	.19	.00	.00	0.60	0.32	0.748
7	O	.00	.01	.07	.18	.30	.23	.17	.03	3.29	0.62	1.208
8	O	.00	.04	.15	.26	.27	.15	.10	.02	2.70	0.54	2.071

Item Statistics for ELA Form 105 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.02	.92	.02	.04	.00	.00	0.92	0.29	-2.413
2	M	.00	.00	.08	.03	.06	.82	.00	.00	0.82	0.31	-1.301
3	M	.00	.00	.04	.90	.04	.01	.00	.00	0.90	0.23	-2.137
4	M	.01	.00	.79	.04	.06	.09	.00	.00	0.79	0.45	-1.122
5	M	.00	.00	.04	.02	.86	.07	.00	.00	0.86	0.34	-1.729
6	M	.00	.00	.72	.05	.08	.14	.00	.00	0.72	0.44	-0.518
7	M	.01	.00	.03	.03	.90	.02	.00	.00	0.90	0.37	-2.026
8	M	.02	.00	.28	.05	.09	.56	.00	.00	0.56	0.40	0.242
9	M	.02	.00	.73	.04	.16	.05	.00	.00	0.73	0.44	-0.524
10	M	.01	.00	.04	.08	.78	.09	.00	.00	0.78	0.39	-0.782
11	M	.02	.00	.10	.03	.80	.04	.00	.00	0.80	0.36	-1.136
12	M	.02	.00	.07	.76	.07	.09	.00	.00	0.76	0.41	-1.149
13	M	.04	.00	.10	.03	.04	.80	.00	.00	0.80	0.49	-1.188
14	M	.04	.00	.31	.60	.03	.02	.00	.00	0.60	0.27	0.571
15	M	.04	.00	.05	.06	.81	.04	.00	.00	0.81	0.41	-1.838
16	M	.05	.00	.08	.14	.55	.19	.00	.00	0.55	0.33	0.657
17	O	.00	.03	.08	.22	.27	.26	.13	.02	3.09	0.62	0.794
18	O	.00	.06	.20	.34	.28	.07	.04	.00	2.19	0.58	1.642

Item Statistics for ELA Form 106 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.68	.11	.20	.00	.00	.00	0.68	0.31	-0.112
2	M	.00	.00	.02	.18	.74	.05	.00	.00	0.74	0.36	-0.470
3	M	.00	.00	.63	.04	.28	.04	.00	.00	0.63	0.30	0.184
4	M	.00	.00	.02	.84	.10	.03	.00	.00	0.84	0.10	-1.218
5	M	.00	.00	.88	.03	.04	.04	.00	.00	0.88	0.32	-1.627
6	M	.00	.00	.01	.03	.17	.78	.00	.00	0.78	0.33	-0.740
7	O	.00	.02	.08	.21	.28	.26	.12	.03	3.16	0.57	0.800
8	O	.00	.06	.12	.35	.36	.09	.01	.00	2.34	0.51	1.517

Item Statistics for ELA Form 107 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.03	.96	.01	.00	.00	.00	0.96	0.24	-2.512
2	M	.00	.00	.50	.19	.13	.17	.00	.00	0.50	0.25	1.139
3	M	.00	.00	.09	.05	.48	.37	.00	.00	0.37	0.12	1.764
4	M	.00	.00	.86	.06	.02	.07	.00	.00	0.86	0.25	-0.962
5	M	.00	.00	.22	.02	.01	.75	.00	.00	0.75	0.26	-0.168
6	M	.00	.00	.05	.26	.61	.08	.00	.00	0.61	0.29	0.597
7	M	.01	.00	.85	.07	.02	.04	.00	.00	0.85	0.34	-0.744
8	M	.01	.00	.03	.08	.82	.06	.00	.00	0.82	0.46	-0.502
9	M	.01	.00	.18	.57	.04	.19	.00	.00	0.57	0.23	0.715
10	M	.02	.00	.02	.10	.80	.06	.00	.00	0.80	0.44	-0.453
11	M	.01	.00	.62	.24	.03	.10	.00	.00	0.62	0.39	0.540
12	M	.02	.00	.05	.13	.20	.60	.00	.00	0.60	0.26	0.564
13	M	.02	.00	.09	.63	.10	.16	.00	.00	0.63	0.35	0.443
14	M	.02	.00	.03	.14	.79	.03	.00	.00	0.79	0.29	-0.462
15	M	.02	.00	.08	.76	.06	.08	.00	.00	0.76	0.42	-0.080
16	M	.02	.00	.06	.11	.08	.72	.00	.00	0.72	0.39	-0.062
17	O	.00	.01	.04	.13	.31	.31	.17	.01	3.42	0.58	1.008
18	O	.00	.08	.19	.32	.26	.11	.03	.00	2.22	0.51	2.032

Item Statistics for ELA Form 108 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.66	.12	.21	.01	.00	.00	0.66	0.35	-0.112
2	M	.00	.00	.02	.16	.77	.05	.00	.00	0.77	0.36	-0.470
3	M	.00	.00	.64	.05	.27	.05	.00	.00	0.64	0.26	0.184
4	M	.00	.00	.02	.86	.09	.04	.00	.00	0.86	0.21	-1.218
5	M	.00	.00	.88	.03	.05	.03	.00	.00	0.88	0.41	-1.627
6	M	.00	.00	.01	.04	.19	.76	.00	.00	0.76	0.29	-0.740
7	M	.02	.00	.02	.02	.91	.02	.00	.00	0.91	0.47	-2.042
8	M	.02	.00	.63	.10	.17	.08	.00	.00	0.63	0.37	0.197
9	M	.02	.00	.03	.03	.05	.86	.00	.00	0.86	0.55	-1.442
10	M	.02	.00	.88	.06	.01	.03	.00	.00	0.88	0.52	-1.589
11	M	.02	.00	.06	.79	.08	.05	.00	.00	0.79	0.52	-0.810
12	M	.02	.00	.05	.06	.85	.03	.00	.00	0.85	0.50	-1.270
13	M	.02	.00	.47	.08	.13	.30	.00	.00	0.47	0.34	1.038
14	M	.03	.00	.21	.60	.06	.11	.00	.00	0.60	0.24	0.370
15	M	.02	.00	.06	.07	.74	.11	.00	.00	0.74	0.42	-0.438
16	M	.02	.00	.08	.09	.17	.64	.00	.00	0.64	0.43	0.144
17	O	.00	.02	.10	.19	.30	.26	.10	.03	3.08	0.63	0.800
18	O	.00	.04	.08	.26	.38	.14	.06	.01	2.70	0.55	1.362

Item Statistics for ELA Form 201 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.64	.13	.05	.17	.00	.00	0.64	0.23	0.038
2	M	.01	.00	.05	.23	.69	.02	.00	.00	0.69	0.24	-0.231
3	M	.00	.00	.09	.78	.06	.06	.00	.00	0.78	0.30	-0.794
4	M	.00	.00	.16	.04	.03	.77	.00	.00	0.77	0.18	-0.707
5	M	.00	.00	.72	.16	.08	.04	.00	.00	0.72	0.29	-0.369
6	M	.00	.00	.05	.22	.49	.24	.00	.00	0.49	0.24	0.824
7	M	.00	.00	.17	.61	.08	.13	.00	.00	0.61	0.35	0.205
8	M	.00	.00	.07	.83	.04	.05	.00	.00	0.83	0.26	-1.100
9	M	.00	.00	.89	.03	.03	.04	.00	.00	0.89	0.39	-1.679
10	M	.00	.00	.03	.05	.89	.04	.00	.00	0.89	0.42	-1.644
11	M	.06	.00	.11	.17	.11	.55	.00	.00	0.55	0.46	0.525
12	M	.07	.00	.18	.53	.06	.16	.00	.00	0.53	0.39	0.588
13	M	.07	.00	.06	.06	.75	.07	.00	.00	0.75	0.55	-0.563
14	M	.07	.00	.66	.05	.10	.11	.00	.00	0.66	0.53	-0.055
15	M	.07	.00	.05	.10	.76	.02	.00	.00	0.76	0.56	-0.644
16	M	.07	.00	.21	.22	.08	.42	.00	.00	0.42	0.37	1.149
17	M	.08	.00	.54	.13	.11	.14	.00	.00	0.54	0.44	0.580
18	M	.07	.00	.07	.07	.07	.72	.00	.00	0.72	0.52	-0.378
19	M	.08	.00	.09	.35	.23	.26	.00	.00	0.35	0.17	1.530
20	M	.08	.00	.06	.04	.23	.59	.00	.00	0.59	0.42	0.302
21	O	.00	.03	.11	.29	.35	.15	.06	.00	2.65	0.58	0.566
22	O	.00	.10	.19	.25	.29	.12	.03	.00	2.22	0.58	1.859

Item Statistics for ELA Form 202 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.01	.17	.79	.02	.00	.00	0.79	0.30	-1.012
2	M	.00	.00	.89	.04	.03	.04	.00	.00	0.89	0.34	-1.904
3	M	.00	.00	.02	.07	.03	.87	.00	.00	0.87	0.32	-1.717
4	M	.00	.00	.52	.20	.17	.10	.00	.00	0.20	0.17	2.532
5	M	.00	.00	.06	.30	.59	.04	.00	.00	0.59	0.35	0.251
6	M	.00	.00	.74	.11	.07	.08	.00	.00	0.74	0.41	-0.606
7	M	.00	.00	.18	.02	.02	.78	.00	.00	0.78	0.43	-0.878
8	M	.00	.00	.07	.78	.08	.06	.00	.00	0.78	0.35	-0.914
9	M	.00	.00	.84	.04	.06	.06	.00	.00	0.84	0.38	-1.408
10	M	.01	.00	.16	.26	.18	.39	.00	.00	0.39	0.40	1.314
11	O	.00	.05	.14	.34	.29	.11	.03	.00	2.34	0.61	1.910
12	O	.00	.10	.15	.27	.29	.12	.04	.00	2.28	0.58	2.071

Item Statistics for ELA Form 203 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.03	.10	.80	.07	.00	.00	0.80	0.28	-1.010
2	M	.01	.00	.65	.07	.25	.03	.00	.00	0.65	0.23	-0.070
3	M	.00	.00	.04	.86	.07	.02	.00	.00	0.86	0.33	-1.499
4	M	.00	.00	.79	.17	.02	.02	.00	.00	0.79	0.32	-0.913
5	M	.00	.00	.06	.20	.03	.70	.00	.00	0.70	0.27	-0.355
6	M	.00	.00	.89	.04	.05	.03	.00	.00	0.89	0.39	-1.722
7	M	.00	.00	.12	.06	.03	.78	.00	.00	0.78	0.30	-0.843
8	M	.01	.00	.05	.05	.86	.04	.00	.00	0.86	0.47	-1.452
9	M	.00	.00	.03	.72	.06	.19	.00	.00	0.72	0.26	-0.427
10	M	.01	.00	.05	.92	.02	.01	.00	.00	0.92	0.27	-2.117
11	O	.00	.03	.16	.28	.29	.16	.05	.01	2.55	0.44	1.556
12	O	.00	.09	.13	.30	.31	.11	.05	.00	2.33	0.50	2.133

Item Statistics for ELA Form 204 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.06	.05	.56	.33	.00	.00	0.56	0.14	0.461
2	M	.00	.00	.01	.07	.88	.04	.00	.00	0.88	0.35	-1.622
3	M	.00	.00	.03	.02	.91	.04	.00	.00	0.91	0.29	-2.026
4	M	.00	.00	.86	.03	.06	.06	.00	.00	0.86	0.23	-1.371
5	M	.00	.00	.19	.02	.13	.66	.00	.00	0.66	0.35	-0.039
6	M	.00	.00	.78	.16	.02	.04	.00	.00	0.78	0.34	-0.751
7	M	.01	.00	.64	.24	.02	.08	.00	.00	0.64	0.30	0.038
8	M	.00	.00	.03	.06	.08	.83	.00	.00	0.83	0.35	-1.151
9	M	.00	.00	.07	.87	.03	.03	.00	.00	0.87	0.25	-1.507
10	M	.00	.00	.77	.03	.04	.15	.00	.00	0.77	0.34	-0.708
11	M	.06	.00	.11	.14	.10	.59	.00	.00	0.59	0.51	0.294
12	M	.06	.00	.16	.57	.06	.16	.00	.00	0.57	0.40	0.413
13	M	.06	.00	.05	.03	.79	.07	.00	.00	0.79	0.54	-0.861
14	M	.06	.00	.71	.03	.08	.11	.00	.00	0.71	0.53	-0.314
15	M	.06	.00	.04	.05	.83	.01	.00	.00	0.83	0.49	-1.125
16	M	.06	.00	.19	.26	.06	.43	.00	.00	0.43	0.37	1.098
17	M	.06	.00	.56	.13	.11	.14	.00	.00	0.56	0.41	0.445
18	M	.06	.00	.06	.08	.05	.75	.00	.00	0.75	0.54	-0.604
19	M	.06	.00	.08	.40	.23	.24	.00	.00	0.40	0.23	1.275
20	M	.06	.00	.06	.04	.19	.65	.00	.00	0.65	0.46	-0.005
21	O	.00	.02	.14	.28	.34	.16	.05	.01	2.65	0.53	1.321
22	O	.00	.11	.16	.27	.23	.16	.06	.00	2.33	0.59	1.899

Item Statistics for ELA Form 205 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.14	.82	.01	.02	.00	.00	0.82	0.32	-1.089
2	M	.01	.00	.21	.59	.06	.14	.00	.00	0.59	0.33	0.345
3	M	.00	.00	.78	.12	.05	.05	.00	.00	0.78	0.35	-0.755
4	M	.01	.00	.09	.19	.08	.63	.00	.00	0.63	0.30	0.137
5	M	.00	.00	.07	.06	.17	.70	.00	.00	0.70	0.36	-0.252
6	M	.00	.00	.72	.15	.09	.04	.00	.00	0.72	0.40	-0.365
7	M	.00	.00	.69	.13	.06	.12	.00	.00	0.69	0.40	-0.197
8	M	.00	.00	.02	.94	.02	.01	.00	.00	0.94	0.35	-2.449
9	M	.00	.00	.82	.03	.10	.05	.00	.00	0.82	0.38	-1.038
10	M	.00	.00	.09	.03	.18	.70	.00	.00	0.70	0.19	-0.242
11	M	.06	.00	.78	.09	.04	.04	.00	.00	0.78	0.54	-0.744
12	M	.07	.00	.04	.08	.74	.08	.00	.00	0.74	0.56	-0.502
13	M	.06	.00	.20	.51	.05	.18	.00	.00	0.51	0.30	0.715
14	M	.06	.00	.05	.09	.73	.06	.00	.00	0.73	0.53	-0.453
15	M	.07	.00	.55	.26	.03	.10	.00	.00	0.55	0.43	0.540
16	M	.07	.00	.09	.11	.19	.54	.00	.00	0.54	0.33	0.564
17	M	.07	.00	.09	.57	.13	.14	.00	.00	0.57	0.43	0.443
18	M	.07	.00	.04	.12	.73	.03	.00	.00	0.73	0.45	-0.462
19	M	.07	.00	.09	.67	.08	.09	.00	.00	0.67	0.47	-0.080
20	M	.07	.00	.07	.09	.10	.66	.00	.00	0.66	0.49	-0.062
21	O	.00	.02	.10	.26	.35	.18	.07	.00	2.78	0.56	1.274
22	O	.00	.12	.21	.27	.23	.11	.03	.00	2.03	0.59	2.032

Item Statistics for ELA Form 206 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.05	.07	.80	.08	.00	.00	0.80	0.08	-0.885
2	M	.00	.00	.06	.83	.02	.09	.00	.00	0.83	0.29	-1.114
3	M	.00	.00	.84	.07	.07	.02	.00	.00	0.84	0.29	-1.169
4	M	.00	.00	.51	.12	.12	.25	.00	.00	0.51	0.30	0.696
5	M	.00	.00	.57	.16	.09	.18	.00	.00	0.57	0.28	0.424
6	M	.00	.00	.03	.63	.11	.23	.00	.00	0.63	0.28	0.145
7	M	.00	.00	.13	.18	.62	.07	.00	.00	0.62	0.32	0.195
8	M	.00	.00	.06	.87	.04	.03	.00	.00	0.87	0.39	-1.424
9	M	.00	.00	.04	.32	.59	.05	.00	.00	0.59	0.15	0.311
10	M	.01	.00	.76	.10	.04	.09	.00	.00	0.76	0.29	-0.626
11	O	.00	.04	.16	.31	.33	.11	.03	.00	2.37	0.56	1.719
12	O	.00	.09	.15	.21	.30	.18	.05	.00	2.46	0.52	1.848

Item Statistics for ELA Form 207 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.93	.04	.02	.01	.00	.00	0.93	0.27	-2.210
2	M	.00	.00	.04	.76	.05	.15	.00	.00	0.76	0.25	-0.626
3	M	.00	.00	.07	.12	.76	.04	.00	.00	0.76	0.21	-0.647
4	M	.00	.00	.44	.42	.07	.07	.00	.00	0.42	0.01	1.148
5	M	.00	.00	.07	.60	.07	.25	.00	.00	0.60	0.26	0.227
6	M	.00	.00	.81	.03	.07	.08	.00	.00	0.81	0.28	-0.963
7	M	.00	.00	.11	.75	.11	.03	.00	.00	0.75	0.25	-0.584
8	M	.00	.00	.06	.07	.14	.73	.00	.00	0.73	0.36	-0.424
9	M	.00	.00	.04	.04	.84	.07	.00	.00	0.84	0.36	-1.236
10	M	.00	.00	.50	.09	.26	.14	.00	.00	0.50	0.43	0.731
11	O	.00	.03	.07	.30	.29	.19	.07	.02	2.82	0.57	1.068
12	O	.00	.08	.14	.23	.32	.16	.05	.01	2.51	0.54	1.595

Item Statistics for ELA Form 208 (equated) 4/1/99.

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.	Rasch
1	M	.00	.00	.04	.03	.91	.01	.00	.00	0.91	0.34	-2.026
2	M	.00	.00	.22	.06	.12	.60	.00	.00	0.60	0.29	0.242
3	M	.00	.00	.74	.04	.17	.05	.00	.00	0.74	0.29	-0.524
4	M	.00	.00	.03	.10	.78	.09	.00	.00	0.78	0.27	-0.782
5	M	.00	.00	.08	.05	.83	.04	.00	.00	0.83	0.31	-1.136
6	M	.00	.00	.07	.83	.05	.04	.00	.00	0.83	0.37	-1.149
7	M	.00	.00	.10	.03	.03	.83	.00	.00	0.83	0.38	-1.188
8	M	.00	.00	.40	.54	.02	.04	.00	.00	0.54	0.16	0.571
9	M	.00	.00	.04	.04	.90	.02	.00	.00	0.90	0.42	-1.838
10	M	.00	.00	.08	.14	.52	.26	.00	.00	0.52	0.25	0.657
11	O	.00	.01	.16	.29	.36	.11	.04	.00	2.50	0.52	1.642
12	O	.00	.08	.08	.24	.28	.22	.08	.00	2.67	0.51	1.691

Appendix F

Item Analysis for Mathematics A

Item Statistics for Mathematics Form 101 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.01	.00	.00	.10	.04	.07	.78	0.78	0.35	-1.303
2	M	.01	.00	.00	.74	.06	.15	.04	0.74	0.45	-1.013
3	M	.00	.00	.00	.56	.25	.11	.09	0.56	0.42	0.005
4	M	.00	.00	.00	.13	.61	.11	.14	0.61	0.49	-0.266
5	M	.00	.00	.00	.02	.20	.74	.04	0.74	0.16	-0.997
6	M	.01	.00	.00	.12	.51	.27	.09	0.51	0.11	0.264
7	M	.00	.00	.00	.06	.17	.64	.13	0.64	0.32	-0.434
8	M	.00	.00	.00	.54	.24	.13	.09	0.54	0.33	0.117
9	O	.00	.35	.07	.18	.40	.00	.00	0.98	0.61	0.359
10	O	.00	.18	.07	.41	.34	.00	.00	1.09	0.61	0.066
11	O	.00	.40	.03	.16	.41	.00	.00	0.98	0.55	0.366
12	O	.00	.14	.07	.17	.14	.47	.00	1.87	0.52	-0.203
13	O	.00	.12	.06	.18	.22	.43	.00	1.92	0.64	-0.304
14	O	.00	.39	.22	.18	.09	.12	.00	0.71	0.59	1.486
15	O	.00	.23	.08	.33	.03	.10	.22	1.57	0.66	0.661
16	O	.00	.31	.25	.09	.04	.20	.11	1.22	0.65	1.196

Item Statistics for Mathematics Form 105 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.00	.00	.00	.04	.93	.01	.02	0.93	0.12	-2.941
2	M	.01	.00	.00	.71	.04	.17	.07	0.71	0.50	-1.013
3	M	.00	.00	.00	.03	.25	.21	.51	0.51	0.25	0.221
4	M	.00	.00	.00	.14	.57	.13	.15	0.57	0.54	-0.266
5	M	.01	.00	.00	.12	.66	.11	.10	0.66	0.28	-0.586
6	M	.00	.00	.00	.03	.56	.27	.14	0.56	0.50	-0.057
7	M	.00	.00	.00	.18	.47	.22	.13	0.47	0.36	0.417
8	M	.02	.00	.00	.29	.25	.34	.09	0.34	0.07	1.072
9	O	.00	.37	.07	.13	.43	.00	.00	1.00	0.60	0.359
10	O	.00	.64	.11	.18	.06	.00	.00	0.30	0.45	2.288
11	O	.00	.39	.06	.12	.43	.00	.00	0.98	0.58	0.366
12	O	.00	.16	.07	.18	.13	.46	.00	1.82	0.54	-0.203
13	O	.00	.11	.03	.11	.34	.15	.26	2.29	0.52	-0.080
14	O	.00	.17	.08	.14	.16	.17	.27	2.07	0.70	0.185
15	O	.00	.24	.10	.31	.03	.07	.25	1.58	0.65	0.661

Item Statistics for Mathematics Form 109 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.01	.00	.00	.58	.19	.13	.09	0.58	0.26	-0.059
2	M	.01	.00	.00	.76	.05	.12	.06	0.76	0.42	-1.013
3	M	.01	.00	.00	.06	.09	.11	.73	0.73	0.44	-0.898
4	M	.00	.00	.00	.14	.63	.10	.12	0.63	0.48	-0.266
5	M	.01	.00	.00	.07	.29	.51	.11	0.51	0.39	0.284
6	M	.01	.00	.00	.48	.39	.08	.04	0.48	0.32	0.444
7	M	.01	.00	.00	.15	.15	.65	.04	0.65	0.35	-0.410
8	M	.01	.00	.00	.28	.25	.45	.02	0.45	0.36	0.630
9	O	.00	.36	.07	.14	.44	.00	.00	1.01	0.56	0.359
11	O	.00	.40	.06	.16	.38	.00	.00	0.92	0.54	0.366
12	O	.00	.15	.07	.15	.18	.46	.00	1.88	0.51	-0.203
13	O	.00	.34	.19	.12	.12	.24	.00	1.08	0.62	0.867
14	O	.00	.23	.11	.12	.03	.50	.00	1.69	0.44	0.110
15	O	.00	.26	.11	.28	.03	.09	.24	1.56	0.64	0.661
16	O	.00	.33	.20	.24	.08	.07	.09	0.96	0.60	1.438

Item Statistics for Mathematics Form 202 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.00	.00	.00	.02	.11	.20	.67	0.67	0.22	-0.582
2	M	.00	.00	.00	.03	.06	.86	.04	0.86	0.32	-1.842
3	M	.00	.00	.00	.04	.31	.61	.05	0.31	0.36	1.261
4	M	.01	.00	.00	.44	.14	.04	.38	0.38	0.25	0.889
5	M	.01	.00	.00	.45	.37	.09	.08	0.45	0.07	0.497
6	M	.01	.00	.00	.14	.23	.26	.35	0.35	0.34	0.996
7	M	.01	.00	.00	.15	.08	.13	.64	0.64	0.36	-0.424
8	M	.01	.00	.00	.51	.12	.12	.25	0.51	0.38	0.224
9	O	.00	.09	.13	.26	.52	.00	.00	1.29	0.46	-0.323
10	O	.00	.57	.06	.22	.15	.00	.00	0.52	0.35	1.332
11	O	.00	.40	.07	.27	.26	.00	.00	0.79	0.68	0.708
12	O	.00	.38	.21	.24	.02	.15	.00	0.73	0.46	1.183
13	O	.00	.20	.08	.25	.16	.31	.00	1.51	0.51	0.234
14	O	.00	.19	.08	.16	.04	.54	.00	1.84	0.50	-0.131
15	O	.00	.52	.15	.11	.09	.06	.06	0.73	0.62	1.510
16	O	.00	.31	.14	.22	.06	.12	.16	1.31	0.57	0.866

Item Statistics for Mathematics Form 206 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.01	.00	.00	.17	.26	.32	.25	0.32	0.26	1.304
2	M	.00	.00	.00	.04	.05	.86	.04	0.86	0.32	-1.842
3	M	.00	.00	.00	.06	.52	.10	.33	0.52	0.50	0.264
4	M	.00	.00	.00	.44	.14	.03	.39	0.39	0.26	0.889
5	M	.01	.00	.00	.11	.06	.61	.21	0.61	0.43	-0.197
6	M	.00	.00	.00	.07	.82	.09	.03	0.82	0.20	-1.518
7	M	.00	.00	.00	.05	.04	.83	.07	0.83	0.32	-1.647
8	M	.01	.00	.00	.76	.19	.02	.03	0.19	0.19	2.167
9	O	.00	.10	.10	.25	.56	.00	.00	1.37	0.47	-0.323
10	O	.00	.69	.06	.12	.13	.00	.00	0.38	0.51	1.773
11	O	.00	.40	.06	.27	.27	.00	.00	0.82	0.70	0.708
12	O	.00	.40	.18	.24	.02	.16	.00	0.77	0.52	1.183
13	O	.00	.61	.03	.08	.04	.19	.05	0.92	0.57	1.657
14	O	.00	.31	.08	.14	.05	.11	.31	1.80	0.60	0.522
15	O	.00	.58	.10	.08	.10	.06	.08	0.78	0.65	1.510

Item Statistics for Mathematics Form 210 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.00	.00	.00	.65	.08	.19	.08	0.65	0.36	-0.482
2	M	.01	.00	.00	.04	.06	.87	.03	0.87	0.33	-1.842
3	M	.01	.00	.00	.05	.28	.63	.04	0.28	0.21	1.478
4	M	.01	.00	.00	.50	.12	.03	.35	0.35	0.25	0.889
5	M	.00	.00	.00	.31	.02	.55	.12	0.31	0.42	1.299
6	M	.00	.00	.00	.09	.77	.06	.08	0.77	0.44	-1.194
7	M	.01	.00	.00	.15	.18	.48	.19	0.48	0.38	0.420
8	M	.01	.00	.00	.39	.14	.30	.17	0.39	0.44	0.876
9	O	.00	.11	.11	.26	.52	.00	.00	1.30	0.44	-0.323
10	O	.00	.16	.04	.20	.60	.00	.00	1.40	0.45	-0.562
11	O	.00	.36	.08	.26	.31	.00	.00	0.87	0.68	0.708
12	O	.00	.37	.18	.27	.02	.15	.00	0.78	0.52	1.183
13	O	.00	.44	.08	.11	.15	.22	.00	1.07	0.57	0.897
14	O	.00	.40	.07	.17	.10	.26	.00	1.15	0.66	0.754
15	O	.00	.53	.14	.10	.09	.08	.07	0.76	0.63	1.510
16	O	.00	.52	.14	.05	.02	.20	.07	0.95	0.48	1.476

Item Statistics for Mathematics Form 303 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.01	.00	.00	.60	.08	.16	.15	0.60	0.38	-0.145
2	M	.01	.00	.00	.05	.05	.84	.05	0.84	0.35	-1.654
3	M	.00	.00	.00	.11	.80	.05	.04	0.80	0.27	-1.297
4	M	.00	.00	.00	.54	.17	.09	.20	0.54	0.25	0.149
5	M	.00	.00	.00	.20	.21	.09	.49	0.49	0.50	0.379
6	M	.02	.00	.00	.30	.20	.15	.33	0.33	0.36	1.181
7	M	.00	.00	.00	.10	.04	.04	.82	0.82	0.33	-1.510
8	M	.01	.00	.00	.12	.38	.14	.35	0.38	0.43	0.934
9	O	.00	.39	.07	.13	.42	.00	.00	0.96	0.58	0.440
10	O	.00	.62	.12	.07	.18	.00	.00	0.43	0.48	1.440
11	O	.00	.29	.03	.24	.44	.00	.00	1.12	0.59	0.129
12	O	.00	.53	.11	.08	.07	.20	.00	0.84	0.51	1.084
13	O	.00	.44	.07	.13	.03	.34	.00	1.20	0.25	0.653
14	O	.00	.24	.08	.19	.22	.27	.00	1.43	0.64	0.470
15	O	.00	.25	.11	.11	.25	.15	.13	1.57	0.46	0.825
16	O	.00	.36	.18	.27	.08	.02	.08	0.83	0.46	1.401

Item Statistics for Mathematics Form 307 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.00	.00	.00	.20	.03	.75	.02	0.75	0.27	-1.136
2	M	.00	.00	.00	.08	.04	.83	.05	0.83	0.41	-1.654
3	M	.00	.00	.00	.13	.28	.57	.02	0.57	0.49	-0.096
4	M	.00	.00	.00	.51	.18	.08	.22	0.51	0.21	0.149
5	M	.01	.00	.00	.10	.04	.24	.62	0.10	0.09	2.814
6	M	.00	.00	.00	.55	.28	.05	.12	0.55	0.45	-0.020
7	M	.00	.00	.00	.32	.06	.08	.54	0.32	0.29	1.142
8	M	.02	.00	.00	.14	.16	.53	.16	0.53	0.28	0.100
9	O	.00	.39	.07	.23	.32	.00	.00	0.86	0.63	0.440
10	O	.00	.32	.07	.11	.51	.00	.00	1.12	0.59	0.052
11	O	.00	.31	.04	.21	.44	.00	.00	1.09	0.61	0.129
12	O	.00	.55	.12	.07	.09	.17	.00	0.76	0.50	1.084
13	O	.00	.26	.20	.16	.02	.08	.28	1.56	0.60	0.587
14	O	.00	.57	.05	.13	.17	.04	.03	0.73	0.34	1.610
15	O	.00	.23	.11	.15	.27	.12	.13	1.54	0.47	0.825

Item Statistics for Mathematics Form 311 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.01	.00	.00	.64	.11	.11	.13	0.64	0.48	-0.291
2	M	.00	.00	.00	.05	.04	.87	.04	0.87	0.32	-1.654
3	M	.00	.00	.00	.43	.10	.43	.04	0.43	0.37	0.756
4	M	.00	.00	.00	.50	.19	.09	.21	0.50	0.15	0.149
5	M	.01	.00	.00	.10	.08	.10	.72	0.72	0.33	-0.724
6	M	.01	.00	.00	.10	.34	.16	.40	0.34	0.34	1.215
7	M	.01	.00	.00	.06	.07	.31	.55	0.55	0.21	0.155
8	M	.00	.00	.00	.40	.37	.11	.11	0.37	0.34	1.016
9	O	.00	.35	.04	.24	.37	.00	.00	0.98	0.62	0.440
10	O	.00	.31	.10	.29	.30	.00	.00	0.89	0.50	0.648
11	O	.00	.34	.05	.14	.47	.00	.00	1.08	0.61	0.129
12	O	.00	.47	.10	.12	.09	.21	.00	0.94	0.47	1.084
13	O	.00	.42	.14	.14	.16	.14	.00	0.87	0.60	1.231
14	O	.00	.61	.17	.05	.05	.11	.00	0.50	0.47	1.615
15	O	.00	.22	.09	.15	.28	.12	.14	1.65	0.49	0.825
16	O	.00	.14	.11	.13	.11	.21	.30	2.17	0.56	0.293

Item Statistics for Mathematics Form 404 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.00	.00	.00	.58	.14	.23	.05	0.58	0.53	-0.081
2	M	.00	.00	.00	.02	.01	.01	.95	0.95	0.15	-3.343
3	M	.00	.00	.00	.09	.80	.07	.03	0.80	0.30	-1.454
4	M	.01	.00	.00	.05	.60	.28	.06	0.60	0.45	-0.213
5	M	.00	.00	.00	.20	.13	.15	.52	0.13	0.12	2.578
6	M	.01	.00	.00	.59	.07	.10	.23	0.59	0.39	-0.173
7	M	.00	.00	.00	.11	.28	.58	.03	0.58	0.46	-0.114
8	M	.00	.00	.00	.43	.10	.25	.22	0.43	0.29	0.656
9	O	.00	.35	.04	.09	.52	.00	.00	1.13	0.41	0.072
10	O	.00	.09	.06	.20	.66	.00	.00	1.51	0.49	-0.890
11	O	.00	.73	.04	.08	.14	.00	.00	0.37	0.48	1.643
12	O	.00	.35	.08	.31	.03	.24	.00	1.09	0.48	0.733
13	O	.00	.27	.07	.12	.08	.46	.00	1.68	0.60	0.115
14	O	.00	.28	.11	.20	.13	.27	.00	1.29	0.56	0.555
15	O	.00	.26	.12	.05	.05	.03	.48	2.18	0.63	0.193
16	O	.00	.39	.17	.11	.05	.04	.24	1.29	0.61	0.840

Item Statistics for Mathematics Form 408 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.00	.00	.00	.64	.23	.04	.09	0.23	0.02	1.710
2	M	.00	.00	.00	.02	.01	.02	.95	0.95	0.11	-3.343
3	M	.00	.00	.00	.72	.19	.06	.03	0.72	0.46	-0.825
4	M	.01	.00	.00	.04	.63	.27	.05	0.63	0.40	-0.213
5	M	.00	.00	.00	.39	.03	.48	.09	0.39	0.46	0.797
6	M	.00	.00	.00	.08	.19	.59	.14	0.59	0.47	-0.141
7	M	.01	.00	.00	.20	.14	.17	.49	0.49	0.45	0.329
8	M	.01	.00	.00	.20	.25	.45	.09	0.25	0.19	1.595
9	O	.00	.34	.03	.07	.56	.00	.00	1.20	0.32	0.072
10	O	.00	.27	.05	.29	.40	.00	.00	1.09	0.50	0.100
11	O	.00	.75	.05	.07	.14	.00	.00	0.34	0.45	1.643
12	O	.00	.36	.09	.30	.04	.21	.00	1.01	0.43	0.733
13	O	.00	.27	.16	.09	.05	.05	.37	1.85	0.57	0.377
14	O	.00	.03	.03	.18	.44	.22	.09	2.10	0.43	0.119
15	O	.00	.30	.11	.05	.07	.04	.43	2.02	0.54	0.193

Item Statistics for Mathematics Form 412 (equated) 4/1/99.

Item	Key	B	Z	0	1	2	3	4	Mean	Cor.	Rasch
1	M	.02	.00	.00	.10	.18	.61	.09	0.61	0.39	-0.232
2	M	.00	.00	.00	.01	.01	.02	.96	0.96	0.13	-3.343
3	M	.00	.00	.00	.17	.06	.75	.02	0.75	0.26	-0.981
4	M	.01	.00	.00	.05	.63	.27	.04	0.63	0.45	-0.213
5	M	.01	.00	.00	.39	.19	.16	.26	0.26	0.42	1.577
6	M	.00	.00	.00	.38	.10	.48	.04	0.48	0.33	0.448
7	M	.00	.00	.00	.16	.16	.58	.09	0.58	0.40	-0.083
8	M	.01	.00	.00	.08	.40	.16	.36	0.36	0.44	1.028
9	O	.00	.31	.05	.08	.57	.00	.00	1.21	0.35	0.072
10	O	.00	.47	.09	.23	.21	.00	.00	0.66	0.43	1.036
11	O	.00	.74	.05	.07	.14	.00	.00	0.35	0.52	1.643
12	O	.00	.35	.08	.31	.06	.20	.00	1.03	0.47	0.733
13	O	.00	.51	.13	.12	.05	.20	.00	0.82	0.55	1.100
14	O	.00	.36	.18	.27	.08	.12	.00	0.78	0.44	1.283
15	O	.00	.31	.13	.05	.04	.03	.44	1.99	0.62	0.193
16	O	.00	.54	.18	.04	.04	.07	.12	0.84	0.61	1.335

Appendix G

Fairness Analysis for English Language Arts

Table 1. Fairness Statistical Evaluation for Form 101.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	*	*
6	.	.
7	.	.
8	*	.
9	.	.
10	.	.
11	*	.
12	.	*
13	.	.
14	.	.
15	.	.
16	.	*
17	*	.
18	.	.

Item Means:

Item	Male	Female	Black	White
1	0.84	0.91	0.73	0.91
2	0.79	0.77	0.73	0.80
3	0.90	0.92	0.81	0.92
4	0.92	0.92	0.81	0.93
5	0.80	0.73	0.53	0.82
6	0.91	0.94	0.84	0.94
7	0.77	0.77	0.67	0.79
8	0.65	0.54	0.51	0.63
9	0.87	0.88	0.81	0.90
10	0.74	0.81	0.64	0.80
11	0.71	0.67	0.56	0.71
12	0.78	0.86	0.81	0.82
13	0.77	0.80	0.66	0.81
14	0.79	0.87	0.73	0.84
15	0.70	0.73	0.61	0.74
16	0.84	0.90	0.86	0.88
17	2.67	3.18	2.40	2.97
18	2.07	2.40	1.70	2.34

Table 1. Fairness Statistical Evaluation for Form 102.

Item	Gender	Afr. Amer./ Black
1	.	*
2	*	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.

Item Means:

Item	Male	Female	Black	White
1	0.61	0.68	0.42	0.70
2	0.92	0.90	0.81	0.93
3	0.86	0.89	0.81	0.91
4	0.81	0.86	0.83	0.85
5	0.83	0.85	0.86	0.84
6	0.89	0.92	0.92	0.90
7	3.27	3.75	3.13	3.61
8	2.18	2.56	1.85	2.49

Table 1. Fairness Statistical Evaluation for Form 103.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.
17	.	.
18	.	.

Item Means:

Item	Male	Female	Black	White
1	0.67	0.64	0.64	0.68
2	0.91	0.88	0.82	0.91
3	0.88	0.91	0.86	0.90
4	0.86	0.86	0.86	0.88
5	0.80	0.84	0.79	0.83
6	0.89	0.91	0.96	0.91
7	0.73	0.73	0.75	0.73
8	0.82	0.90	0.89	0.87
9	0.79	0.83	0.86	0.82
10	0.89	0.95	0.93	0.92
11	0.80	0.86	0.93	0.83
12	0.77	0.84	0.82	0.83
13	0.84	0.90	0.93	0.89
14	0.56	0.62	0.61	0.62
15	0.69	0.76	0.64	0.75
16	0.65	0.62	0.54	0.64
17	3.35	3.80	3.68	3.58
18	2.19	2.61	2.75	2.45

Table 1. Fairness Statistical Evaluation for Form 104.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	*	.
8	.	.

Item Means:

Item	Male	Female	Black	White
1	0.81	0.85	0.72	0.84
2	0.88	0.92	0.86	0.91
3	0.84	0.87	0.79	0.88
4	0.69	0.72	0.60	0.70
5	0.59	0.67	0.63	0.66
6	0.57	0.62	0.58	0.59
7	2.96	3.59	2.95	3.35
8	2.46	2.93	2.33	2.74

Table 1. Fairness Statistical Evaluation for Form 105.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	*	.
17	.	.
18	.	.

Item Means:

Item	Male	Female	Black	White
1	0.90	0.94	0.89	0.93
2	0.79	0.84	0.79	0.82
3	0.91	0.90	0.91	0.91
4	0.75	0.83	0.65	0.83
5	0.85	0.88	0.81	0.89
6	0.66	0.77	0.69	0.75
7	0.87	0.93	0.80	0.92
8	0.50	0.61	0.41	0.60
9	0.67	0.78	0.69	0.75
10	0.74	0.80	0.72	0.78
11	0.77	0.83	0.79	0.78
12	0.71	0.80	0.68	0.76
13	0.73	0.86	0.74	0.80
14	0.58	0.62	0.63	0.59
15	0.74	0.87	0.70	0.82
16	0.55	0.55	0.49	0.58
17	2.78	3.36	2.65	3.19
18	1.91	2.43	1.89	2.28

Table 1. Fairness Statistical Evaluation for Form 106.

Item	Gender	Afr. Amer./ Black
1	.	*
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.

Item Means:

Item	Male	Female	Black	White
1	0.68	0.69	0.46	0.72
2	0.73	0.75	0.54	0.77
3	0.60	0.66	0.50	0.66
4	0.82	0.86	0.87	0.85
5	0.87	0.89	0.85	0.90
6	0.75	0.81	0.71	0.80
7	2.87	3.43	2.79	3.24
8	2.11	2.54	1.91	2.45

Table 1. Fairness Statistical Evaluation for Form 107.

Item	Gender	Afr. Amer./ Black
1	.	.
2	*	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.
17	*	.
18	*	.

Item Means:

Item	Male	Female	Black	White
1	0.96	0.96	0.99	0.95
2	0.52	0.49	0.43	0.51
3	0.38	0.37	0.28	0.40
4	0.83	0.88	0.87	0.85
5	0.72	0.78	0.71	0.76
6	0.59	0.64	0.49	0.63
7	0.80	0.89	0.82	0.85
8	0.75	0.87	0.81	0.80
9	0.56	0.58	0.54	0.58
10	0.76	0.84	0.76	0.82
11	0.58	0.65	0.55	0.64
12	0.56	0.62	0.48	0.64
13	0.59	0.66	0.62	0.63
14	0.77	0.80	0.77	0.78
15	0.72	0.80	0.67	0.77
16	0.65	0.79	0.67	0.75
17	3.10	3.69	3.11	3.46
18	1.85	2.54	1.96	2.24

Table 1. Fairness Statistical Evaluation for Form 108.

Item	Gender	Afr. Amer./ Black
1	*	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	*	*
16	.	.
17	*	.
18	.	.

Item Means:

Item	Male	Female	Black	White
1	0.67	0.65	0.51	0.73
2	0.75	0.78	0.73	0.81
3	0.62	0.65	0.62	0.65
4	0.83	0.88	0.89	0.85
5	0.83	0.92	0.84	0.89
6	0.75	0.78	0.78	0.79
7	0.89	0.94	0.87	0.95
8	0.59	0.67	0.49	0.67
9	0.80	0.92	0.86	0.88
10	0.84	0.91	0.89	0.89
11	0.74	0.83	0.75	0.81
12	0.81	0.88	0.81	0.88
13	0.43	0.51	0.32	0.52
14	0.53	0.66	0.65	0.62
15	0.74	0.74	0.59	0.79
16	0.60	0.67	0.52	0.69
17	2.76	3.35	2.98	3.19
18	2.50	2.86	2.30	2.84

Table 1. Fairness Statistical Evaluation for Form 201.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	*	.
6	.	.
7	*	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.
17	.	.
18	.	.
19	.	.
20	.	.
21	*	.
22	*	.

Item Means:

Item	Male	Female	Black	White
1	0.65	0.64	0.59	0.69
2	0.71	0.68	0.64	0.73
3	0.76	0.80	0.81	0.81
4	0.72	0.81	0.74	0.80
5	0.75	0.69	0.68	0.74
6	0.45	0.52	0.42	0.51
7	0.64	0.59	0.54	0.65
8	0.83	0.83	0.77	0.85
9	0.88	0.90	0.90	0.91
10	0.85	0.92	0.81	0.91
11	0.53	0.56	0.41	0.59
12	0.55	0.52	0.38	0.57
13	0.72	0.77	0.64	0.80
14	0.61	0.70	0.46	0.73
15	0.72	0.79	0.64	0.79
16	0.37	0.46	0.32	0.45
17	0.52	0.55	0.32	0.59
18	0.69	0.74	0.55	0.79
19	0.32	0.37	0.28	0.36
20	0.58	0.60	0.42	0.65
21	2.37	2.88	2.16	2.83
22	1.89	2.48	1.55	2.38

Table 1. Fairness Statistical Evaluation for Form 202.

Item	Gender	Afr. Amer./ Black
1	.	*
2	.	.
3	.	.
4	.	.
5	*	.
6	.	.
7	*	.
8	*	.
9	.	.
10	.	.
11	*	.
12	*	.

Item Means:

Item	Male	Female	Black	White
1	0.80	0.79	0.59	0.86
2	0.88	0.90	0.84	0.92
3	0.89	0.86	0.81	0.91
4	0.22	0.19	0.20	0.22
5	0.63	0.56	0.48	0.63
6	0.71	0.76	0.61	0.81
7	0.80	0.76	0.67	0.83
8	0.80	0.77	0.73	0.82
9	0.80	0.88	0.77	0.88
10	0.37	0.41	0.27	0.44
11	2.05	2.60	1.97	2.56
12	1.99	2.53	2.05	2.44

Table 1. Fairness Statistical Evaluation for Form 203.

Item	Gender	Afr. Amer./ Black
1	*	.
2	*	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	*	.
12	*	.

Item Means:

Item	Male	Female	Black	White
1	0.83	0.78	0.80	0.83
2	0.71	0.60	0.49	0.69
3	0.86	0.87	0.78	0.88
4	0.78	0.81	0.76	0.81
5	0.73	0.68	0.59	0.75
6	0.88	0.89	0.81	0.91
7	0.78	0.79	0.73	0.82
8	0.82	0.89	0.85	0.90
9	0.72	0.71	0.68	0.76
10	0.89	0.94	0.93	0.92
11	2.26	2.82	2.17	2.66
12	2.08	2.56	1.75	2.47

Table 1. Fairness Statistical Evaluation for Form 204.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	*	.
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	*	.
13	.	*
14	.	.
15	.	.
16	.	.
17	.	.
18	.	.
19	.	.
20	.	.
21	*	.
22	.	.

Item Means:

Item	Male	Female	Black	White
1	0.52	0.60	0.43	0.59
2	0.86	0.90	0.81	0.92
3	0.90	0.93	0.88	0.94
4	0.85	0.86	0.86	0.86
5	0.67	0.65	0.58	0.72
6	0.76	0.79	0.69	0.83
7	0.61	0.67	0.64	0.66
8	0.81	0.85	0.80	0.85
9	0.85	0.89	0.88	0.86
10	0.73	0.80	0.70	0.79
11	0.56	0.62	0.48	0.65
12	0.59	0.55	0.49	0.61
13	0.73	0.84	0.77	0.82
14	0.66	0.74	0.48	0.77
15	0.78	0.87	0.75	0.85
16	0.42	0.45	0.35	0.44
17	0.55	0.58	0.39	0.62
18	0.70	0.80	0.63	0.80
19	0.36	0.43	0.24	0.45
20	0.64	0.66	0.55	0.70
21	2.40	2.86	2.27	2.81
22	2.06	2.57	1.63	2.65

Table 1. Fairness Statistical Evaluation for Form 205.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	*	.
7	.	.
8	.	.
9	.	.
10	.	.
11	*	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.
17	.	.
18	.	.
19	.	.
20	.	.
21	*	.
22	.	.

Item Means:

Item	Male	Female	Black	White
1	0.79	0.85	0.67	0.89
2	0.58	0.59	0.51	0.65
3	0.77	0.78	0.74	0.83
4	0.61	0.64	0.62	0.65
5	0.63	0.74	0.60	0.72
6	0.74	0.70	0.60	0.78
7	0.68	0.69	0.60	0.73
8	0.93	0.95	0.84	0.96
9	0.79	0.84	0.77	0.86
10	0.65	0.73	0.70	0.71
11	0.78	0.77	0.68	0.81
12	0.70	0.77	0.66	0.80
13	0.49	0.53	0.42	0.56
14	0.71	0.74	0.60	0.78
15	0.54	0.55	0.47	0.59
16	0.51	0.57	0.48	0.59
17	0.48	0.63	0.47	0.60
18	0.74	0.73	0.55	0.80
19	0.63	0.69	0.60	0.72
20	0.61	0.70	0.62	0.69
21	2.52	2.99	2.34	2.98
22	1.74	2.25	1.42	2.29

Table 1. Fairness Statistical Evaluation for Form 206.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	*	.
5	.	*
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.

Item Means:

Item	Male	Female	Black	White
1	0.78	0.82	0.80	0.81
2	0.81	0.85	0.85	0.86
3	0.85	0.83	0.85	0.85
4	0.53	0.50	0.45	0.56
5	0.58	0.56	0.38	0.64
6	0.55	0.70	0.48	0.65
7	0.60	0.63	0.58	0.63
8	0.84	0.89	0.85	0.88
9	0.52	0.67	0.65	0.59
10	0.73	0.79	0.77	0.75
11	2.17	2.56	2.06	2.47
12	2.27	2.64	2.02	2.67

Table 1. Fairness Statistical Evaluation for Form 207.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	*	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.

Item Means:

Item	Male	Female	Black	White
1	0.90	0.96	0.90	0.94
2	0.71	0.79	0.69	0.77
3	0.76	0.76	0.76	0.79
4	0.44	0.40	0.31	0.42
5	0.58	0.63	0.61	0.62
6	0.77	0.84	0.71	0.82
7	0.77	0.74	0.69	0.79
8	0.62	0.81	0.69	0.77
9	0.78	0.89	0.70	0.88
10	0.43	0.56	0.33	0.54
11	2.41	3.13	2.34	2.96
12	2.11	2.82	1.96	2.70

Table 1. Fairness Statistical Evaluation for Form 208.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	*	.
11	.	.
12	.	.

Item Means:

Item	Male	Female	Black	White
1	0.90	0.92	0.85	0.93
2	0.61	0.59	0.55	0.63
3	0.72	0.75	0.76	0.76
4	0.77	0.78	0.84	0.81
5	0.78	0.87	0.87	0.85
6	0.81	0.84	0.73	0.85
7	0.80	0.86	0.77	0.86
8	0.54	0.53	0.42	0.52
9	0.87	0.92	0.87	0.91
10	0.54	0.50	0.44	0.53
11	2.31	2.66	2.32	2.59
12	2.53	2.80	2.23	2.88

Appendix H

Fairness Analysis for Mathematics

Table 1. Fairness Statistical Evaluation for Form 101.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	*	.
11	.	.
12	.	.
13	.	.
14	.	.
15	*	.
16	.	.

Item Means:

Item	Male	Female	Black	White
1	1.62	1.52	1.24	1.64
2	1.54	1.43	1.08	1.54
3	1.11	1.13	0.85	1.20
4	1.27	1.19	1.03	1.29
5	1.42	1.52	1.12	1.53
6	0.98	1.06	0.88	1.05
7	1.35	1.23	0.88	1.39
8	1.05	1.10	0.88	1.14
9	1.05	0.92	0.55	1.08
10	1.03	1.15	0.76	1.15
11	1.01	0.95	0.62	1.04
12	1.86	1.88	1.19	2.02
13	1.99	1.85	1.20	2.02
14	0.74	0.68	0.26	0.80
15	1.79	1.38	0.87	1.79
16	1.26	1.18	0.61	1.37

Table 1. Fairness Statistical Evaluation for Form 105.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	*	.
15	*	.
16	*	*

Item Means:

Item	Male	Female	Black	White
1	1.88	1.86	1.83	1.87
2	1.43	1.42	1.06	1.50
3	0.99	1.03	0.77	1.06
4	1.22	1.08	0.79	1.21
5	1.27	1.37	1.13	1.37
6	1.15	1.09	0.67	1.22
7	0.97	0.90	0.77	0.98
8	0.68	0.69	0.63	0.70
9	1.05	0.94	0.56	1.08
10	0.30	0.31	0.08	0.37
11	0.97	0.99	0.54	1.05
12	1.84	1.80	1.16	1.98
13	2.40	2.17	1.48	2.50
14	2.03	2.10	1.11	2.31
15	1.73	1.43	0.67	1.81

Table 1. Fairness Statistical Evaluation for Form 109.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	*	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.

Item Means:

Item	Male	Female	Black	White
1	1.20	1.13	0.91	1.23
2	1.57	1.46	1.07	1.62
3	1.43	1.48	1.24	1.52
4	1.33	1.22	0.84	1.34
5	1.01	1.04	0.61	1.10
6	1.05	0.89	0.67	1.08
7	1.32	1.27	1.16	1.31
8	0.94	0.85	0.55	0.99
9	1.10	0.93	0.58	1.18
10	0.06	0.06	0.01	0.06
11	0.87	0.96	0.38	1.06
12	1.91	1.85	1.32	2.05
13	1.09	1.07	0.25	1.30
14	1.68	1.70	1.09	1.92
15	1.70	1.44	0.51	1.81
16	0.95	0.96	0.36	1.13

Table 1. Fairness Statistical Evaluation for Form 202.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	*	.
8	.	.
9	.	.
10	.	*
11	.	.
12	.	.
13	*	.
14	.	.
15	.	.
16	.	.

Item Means:

Item	Male	Female	Black	White
1	1.43	1.27	1.03	1.44
2	1.69	1.74	1.59	1.76
3	0.61	0.61	0.56	0.62
4	0.72	0.78	0.64	0.78
5	0.88	0.93	0.78	0.95
6	0.75	0.67	0.62	0.73
7	1.37	1.21	0.89	1.42
8	0.99	1.06	0.66	1.07
9	1.30	1.28	0.93	1.40
10	0.51	0.52	0.46	0.52
11	0.81	0.78	0.34	0.91
12	0.80	0.66	0.36	0.80
13	1.61	1.42	0.90	1.65
14	1.75	1.93	1.19	1.97
15	0.82	0.66	0.20	0.87
16	1.33	1.30	0.75	1.45

Table 1. Fairness Statistical Evaluation for Form 206.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	*	.
4	.	.
5	.	*
6	.	.
7	.	*
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	*	*

Item Means:

Item	Male	Female	Black	White
1	0.66	0.61	0.39	0.71
2	1.75	1.70	1.55	1.77
3	1.15	0.93	0.54	1.19
4	0.74	0.81	0.71	0.78
5	1.25	1.19	1.16	1.22
6	1.63	1.65	1.40	1.65
7	1.70	1.63	1.27	1.77
8	0.40	0.35	0.30	0.39
9	1.39	1.35	0.97	1.48
10	0.37	0.39	0.22	0.41
11	0.82	0.81	0.35	0.93
12	0.89	0.65	0.43	0.90
13	0.96	0.89	0.47	1.14
14	1.86	1.75	1.05	2.02
15	0.89	0.67	0.20	0.96

Table 1. Fairness Statistical Evaluation for Form 210.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	*
5	.	.
6	.	.
7	.	.
8	.	*
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.

Item Means:

Item	Male	Female	Black	White
1	1.26	1.35	1.24	1.30
2	1.75	1.71	1.53	1.76
3	0.64	0.49	0.35	0.63
4	0.68	0.72	0.87	0.68
5	0.68	0.57	0.45	0.69
6	1.48	1.59	1.28	1.60
7	0.99	0.93	0.80	1.05
8	0.83	0.73	0.31	0.90
9	1.30	1.31	1.04	1.40
10	1.36	1.43	1.09	1.49
11	0.82	0.92	0.57	0.98
12	0.85	0.71	0.40	0.91
13	1.09	1.05	0.65	1.27
14	1.12	1.18	0.69	1.27
15	0.88	0.65	0.18	0.94
16	0.93	0.96	0.60	0.96

Table 1. Fairness Statistical Evaluation for Form 303.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	*	.
11	.	.
12	*	.
13	.	.
14	.	.
15	.	.
16	.	.

Item Means:

Item	Male	Female	Black	White
1	1.29	1.13	0.74	1.36
2	1.68	1.68	1.38	1.78
3	1.60	1.59	1.54	1.60
4	1.11	1.06	0.78	1.15
5	0.99	0.99	0.69	1.07
6	0.73	0.61	0.48	0.73
7	1.62	1.67	1.52	1.70
8	0.82	0.71	0.44	0.88
9	1.00	0.93	0.45	1.10
10	0.42	0.44	0.21	0.46
11	1.10	1.14	0.70	1.22
12	1.07	0.64	0.31	0.97
13	1.32	1.10	1.08	1.24
14	1.46	1.40	0.76	1.65
15	1.63	1.51	0.97	1.76
16	0.93	0.75	0.55	0.96

Table 1. Fairness Statistical Evaluation for Form 307.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	*
3	.	.
4	.	.
5	.	.
6	.	*
7	.	*
8	.	.
9	.	.
10	.	.
11	.	.
12	*	.
13	.	.
14	.	.
15	.	.
16	*	*

Item Means:

Item	Male	Female	Black	White
1	1.51	1.50	1.31	1.56
2	1.67	1.63	1.27	1.77
3	1.13	1.13	0.88	1.21
4	1.00	1.04	0.73	1.06
5	0.23	0.15	0.11	0.20
6	1.10	1.10	0.56	1.27
7	0.60	0.67	0.71	0.61
8	1.00	1.10	0.82	1.09
9	0.87	0.86	0.52	0.96
10	1.14	1.10	0.65	1.21
11	1.09	1.08	0.67	1.18
12	0.94	0.59	0.37	0.85
13	1.57	1.56	0.84	1.71
14	0.69	0.77	0.59	0.77
15	1.53	1.55	1.06	1.65

Table 1. Fairness Statistical Evaluation for Form 311.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	*	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	*	.
13	.	.
14	.	.
15	.	.
16	.	.

Item Means:

Item	Male	Female	Black	White
1	1.23	1.32	0.89	1.35
2	1.73	1.76	1.53	1.84
3	0.96	0.75	0.56	0.92
4	0.96	1.05	1.04	1.01
5	1.39	1.47	1.36	1.44
6	0.68	0.67	0.44	0.73
7	1.04	1.15	0.96	1.15
8	0.79	0.71	0.40	0.84
9	0.97	1.00	0.58	1.11
10	0.92	0.85	0.54	1.02
11	1.09	1.07	0.66	1.20
12	1.09	0.79	0.56	1.08
13	0.94	0.81	0.41	0.99
14	0.50	0.49	0.12	0.59
15	1.62	1.67	1.19	1.86
16	2.09	2.24	1.63	2.41

Table 1. Fairness Statistical Evaluation for Form 404.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	*	*
11	.	.
12	.	.
13	*	*
14	.	*
15	.	.
16	.	.

Item Means:

Item	Male	Female	Black	White
1	1.17	1.14	0.87	1.22
2	1.89	1.92	1.86	1.94
3	1.59	1.62	1.46	1.70
4	1.20	1.21	0.99	1.32
5	0.27	0.27	0.08	0.32
6	1.16	1.21	0.99	1.31
7	1.20	1.14	0.82	1.37
8	0.84	0.87	0.87	0.90
9	1.16	1.11	0.73	1.28
10	1.44	1.58	1.42	1.56
11	0.40	0.34	0.15	0.43
12	1.04	1.13	0.65	1.26
13	1.56	1.78	1.48	1.75
14	1.29	1.30	0.63	1.55
15	2.22	2.14	1.59	2.38
16	1.35	1.25	0.58	1.55

Table 1. Fairness Statistical Evaluation for Form 408.

Item	Gender	Afr. Amer./ Black
1	.	.
2	.	.
3	.	.
4	.	.
5	.	*
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	*	.
12	.	.
13	.	.
14	.	.
15	.	.
16	*	*

Item Means:

Item	Male	Female	Black	White
1	0.48	0.45	0.41	0.50
2	1.90	1.90	1.85	1.93
3	1.47	1.40	1.12	1.51
4	1.28	1.25	0.82	1.37
5	0.79	0.78	0.69	0.81
6	1.13	1.21	0.88	1.30
7	1.04	0.92	0.52	1.11
8	0.54	0.46	0.43	0.54
9	1.24	1.16	0.84	1.32
10	1.08	1.09	0.68	1.23
11	0.40	0.29	0.16	0.39
12	0.97	1.05	0.59	1.11
13	1.79	1.89	1.15	2.03
14	2.06	2.13	1.68	2.26
15	2.06	1.98	1.39	2.19

Table 1. Fairness Statistical Evaluation for Form 412.

Item	Gender	Afr. Amer./ Black
1	*	.
2	.	.
3	.	.
4	.	.
5	.	.
6	*	.
7	.	.
8	.	*
9	.	.
10	.	.
11	*	.
12	*	.
13	.	*
14	.	.
15	.	.
16	.	.

Item Means:

Item	Male	Female	Black	White
1	1.35	1.12	0.81	1.36
2	1.93	1.91	1.86	1.94
3	1.50	1.49	1.33	1.51
4	1.24	1.27	0.89	1.37
5	0.54	0.50	0.28	0.60
6	1.08	0.84	0.77	1.04
7	1.23	1.12	0.83	1.33
8	0.68	0.75	0.73	0.73
9	1.25	1.17	0.76	1.36
10	0.70	0.62	0.34	0.77
11	0.48	0.24	0.11	0.41
12	0.96	1.09	0.55	1.22
13	0.84	0.80	0.64	0.89
14	0.77	0.78	0.49	0.87
15	2.03	1.96	1.35	2.23
16	0.89	0.79	0.25	1.06

Appendix I

Frequency Distribution of Rasch Theta for English Language Arts

CUM COUNT	CUM COUNT	PCT	PCT	THETA
1	1	.0	.0	-4.189
2	3	.0	.0	-4.122
1	4	.0	.1	-3.953
1	5	.0	.1	-3.902
1	6	.0	.1	-3.674
2	8	.0	.1	-3.444
2	10	.0	.2	-3.370
3	13	.0	.2	-3.240
2	15	.0	.2	-3.161
3	18	.0	.3	-3.051
1	19	.0	.3	-2.925
5	24	.1	.4	-2.844
2	26	.0	.4	-2.754
2	28	.0	.5	-2.644
2	30	.0	.5	-2.564
2	32	.0	.5	-2.555
2	34	.0	.5	-2.411
3	37	.0	.6	-2.391
3	40	.0	.6	-2.384
7	47	.1	.8	-2.369
6	53	.1	.9	-2.302
3	56	.0	.9	-2.198
11	67	.2	1.1	-2.131
8	75	.1	1.2	-2.079
4	79	.1	1.3	-2.074
8	87	.1	1.4	-2.019
7	94	.1	1.5	-2.012
6	100	.1	1.6	-1.995
8	108	.1	1.7	-1.898
3	111	.0	1.8	-1.881
6	117	.1	1.9	-1.862
4	121	.1	2.0	-1.860
4	125	.1	2.0	-1.814
9	134	.1	2.2	-1.783
14	148	.2	2.4	-1.731
6	154	.1	2.5	-1.675
4	158	.1	2.6	-1.640
10	168	.2	2.7	-1.620
19	187	.3	3.0	-1.590
11	198	.2	3.2	-1.577
4	202	.1	3.3	-1.532
11	213	.2	3.4	-1.527
6	219	.1	3.5	-1.469
7	226	.1	3.6	-1.437
11	237	.2	3.8	-1.409
17	254	.3	4.1	-1.390
13	267	.2	4.3	-1.374
11	278	.2	4.5	-1.359
19	297	.3	4.8	-1.306
7	304	.1	4.9	-1.216
23	327	.4	5.3	-1.209
11	338	.2	5.5	-1.199
11	349	.2	5.6	-1.155
11	360	.2	5.8	-1.138

CUM COUNT	CUM COUNT	PCT	PCT	THETA
14	374	.2	6.0	-1.099
11	385	.2	6.2	-1.096
20	405	.3	6.5	-1.082
13	418	.2	6.7	-1.064
21	439	.3	7.1	-1.025
11	450	.2	7.3	-1.003
15	465	.2	7.5	-0.961
14	479	.2	7.7	-0.933
11	490	.2	7.9	-0.904
26	516	.4	8.3	-0.850
17	533	.3	8.6	-0.844
24	557	.4	9.0	-0.830
15	572	.2	9.2	-0.818
29	601	.5	9.7	-0.790
18	619	.3	10.0	-0.776
11	630	.2	10.2	-0.763
20	650	.3	10.5	-0.719
20	670	.3	10.8	-0.711
28	698	.5	11.3	-0.667
18	716	.3	11.6	-0.640
17	733	.3	11.8	-0.596
18	751	.3	12.1	-0.573
42	793	.7	12.8	-0.569
27	820	.4	13.2	-0.541
25	845	.4	13.6	-0.510
33	878	.5	14.2	-0.502
34	912	.5	14.7	-0.493
17	929	.3	15.0	-0.468
22	951	.4	15.4	-0.420
41	992	.7	16.0	-0.407
13	1005	.2	16.2	-0.368
21	1026	.3	16.6	-0.360
29	1055	.5	17.0	-0.316
29	1084	.5	17.5	-0.303
22	1106	.4	17.9	-0.299
37	1143	.6	18.5	-0.259
25	1168	.4	18.9	-0.245
41	1209	.7	19.5	-0.209
19	1228	.3	19.8	-0.197
40	1268	.6	20.5	-0.145
25	1293	.4	20.9	-0.133
55	1348	.9	21.8	-0.125
24	1372	.4	22.2	-0.071
42	1414	.7	22.8	-0.066
32	1446	.5	23.3	-0.028
57	1503	.9	24.3	-0.026
53	1556	.9	25.1	-0.005
1	1557	.0	25.1	0.000
46	1603	.7	25.9	0.008
24	1627	.4	26.3	0.034
48	1675	.8	27.0	0.098
26	1701	.4	27.5	0.105
55	1756	.9	28.4	0.128

CUM COUNT	CUM COUNT	PCT	PCT	THETA
29	1785	.5	28.8	0.142
56	1841	.9	29.7	0.184
26	1867	.4	30.1	0.202
64	1931	1.0	31.2	0.259
73	2004	1.2	32.4	0.268
59	2063	1.0	33.3	0.272
30	2093	.5	33.8	0.283
38	2131	.6	34.4	0.313
30	2161	.5	34.9	0.372
59	2220	1.0	35.8	0.410
71	2291	1.1	37.0	0.417
59	2350	1.0	37.9	0.427
64	2414	1.0	39.0	0.442
38	2452	.6	39.6	0.466
43	2495	.7	40.3	0.488
60	2555	1.0	41.2	0.536
38	2593	.6	41.9	0.548
72	2665	1.2	43.0	0.606
49	2714	.8	43.8	0.656
35	2749	.6	44.4	0.669
74	2823	1.2	45.6	0.698
71	2894	1.1	46.7	0.713
49	2943	.8	47.5	0.731
66	3009	1.1	48.6	0.735
80	3089	1.3	49.9	0.787
59	3148	1.0	50.8	0.834
43	3191	.7	51.5	0.854
41	3232	.7	52.2	0.856
88	3320	1.4	53.6	0.863
43	3363	.7	54.3	0.922
76	3439	1.2	55.5	0.986
66	3505	1.1	56.6	1.010
42	3547	.7	57.3	1.053
41	3588	.7	57.9	1.063
89	3677	1.4	59.4	1.087
41	3718	.7	60.0	1.126
66	3784	1.1	61.1	1.157
56	3840	.9	62.0	1.186
89	3929	1.4	63.4	1.190
35	3964	.6	64.0	1.263
33	3997	.5	64.5	1.286
64	4061	1.0	65.6	1.341
33	4094	.5	66.1	1.345
102	4196	1.6	67.7	1.396
59	4255	1.0	68.7	1.431
58	4313	.9	69.6	1.486
48	4361	.8	70.4	1.487
62	4423	1.0	71.4	1.509
39	4462	.6	72.0	1.526
39	4501	.6	72.7	1.583
52	4553	.8	73.5	1.623
57	4610	.9	74.4	1.721
39	4649	.6	75.1	1.730

CUM COUNT	CUM COUNT	PCT	PCT	THETA
91	4740	1.5	76.5	1.772
54	4794	.9	77.4	1.789
54	4848	.9	78.3	1.846
39	4887	.6	78.9	1.900
53	4940	.9	79.8	1.946
46	4986	.7	80.5	1.953
34	5020	.5	81.0	1.996
111	5131	1.8	82.8	2.036
32	5163	.5	83.4	2.082
44	5207	.7	84.1	2.094
32	5239	.5	84.6	2.141
36	5275	.6	85.2	2.163
22	5297	.4	85.5	2.294
36	5333	.6	86.1	2.336
23	5356	.4	86.5	2.416
23	5379	.4	86.8	2.478
37	5416	.6	87.4	2.483
69	5485	1.1	88.6	2.487
43	5528	.7	89.2	2.557
40	5568	.6	89.9	2.595
25	5593	.4	90.3	2.630
28	5621	.5	90.7	2.684
21	5642	.3	91.1	2.808
93	5735	1.5	92.6	2.828
21	5756	.3	92.9	2.874
8	5764	.1	93.1	3.022
24	5788	.4	93.4	3.114
31	5819	.5	93.9	3.130
27	5846	.4	94.4	3.239
12	5858	.2	94.6	3.294
14	5872	.2	94.8	3.297
54	5926	.9	95.7	3.360
15	5941	.2	95.9	3.404
18	5959	.3	96.2	3.504
9	5968	.1	96.4	3.727
68	6036	1.1	97.4	3.794
14	6050	.2	97.7	3.925
4	6054	.1	97.7	3.953
4	6058	.1	97.8	3.985
10	6068	.2	98.0	4.029
12	6080	.2	98.2	4.070
9	6089	.1	98.3	4.125
3	6092	.0	98.4	4.147
15	6107	.2	98.6	4.398
6	6113	.1	98.7	4.463
2	6115	.0	98.7	4.832
31	6146	.5	99.2	4.873
2	6148	.0	99.3	4.914
1	6149	.0	99.3	4.958
4	6153	.1	99.3	5.156
2	6155	.0	99.4	5.194
6	6161	.1	99.5	5.228
6	6167	.1	99.6	5.469

CUM COUNT	CUM COUNT	PCT	PCT	THETA
5	6172	.1	99.6	5.701
1	6173	.0	99.7	6.105
11	6184	.2	99.8	6.121
3	6187	.0	99.9	6.668
1	6188	.0	99.9	6.785
1	6189	.0	99.9	6.848
1	6190	.0	99.9	6.917
4	6194	.1	100.0	7.049

Appendix H

Frequency Distribution of Rasch Theta for Mathematics

CUM COUNT	CUM COUNT	PCT	PCT	THETA
2	2	.0	.0	-4.237
1	3	.0	.1	-4.082
3	6	.1	.1	-3.788
4	10	.1	.2	-3.412
3	13	.1	.3	-3.347
6	19	.1	.4	-3.332
4	23	.1	.5	-3.268
6	29	.1	.6	-3.063
5	34	.1	.7	-3.061
10	44	.2	.9	-2.682
14	58	.3	1.2	-2.404
8	66	.2	1.4	-2.360
26	92	.6	2.0	-2.346
14	106	.3	2.3	-2.304
25	131	.5	2.8	-1.966
24	155	.5	3.3	-1.923
17	172	.4	3.7	-1.893
23	195	.5	4.1	-1.840
23	218	.5	4.6	-1.758
18	236	.4	5.0	-1.756
21	257	.4	5.5	-1.531
15	272	.3	5.8	-1.498
24	296	.5	6.3	-1.463
18	314	.4	6.7	-1.347
36	350	.8	7.4	-1.332
30	380	.6	8.1	-1.323
36	416	.8	8.8	-1.249
25	441	.5	9.4	-1.224
39	480	.8	10.2	-1.131
32	512	.7	10.9	-1.034
28	540	.6	11.5	-1.016
33	573	.7	12.2	-0.995
35	608	.7	12.9	-0.989
43	651	.9	13.8	-0.911
30	681	.6	14.5	-0.872
31	712	.7	15.1	-0.816
31	743	.7	15.8	-0.796
27	770	.6	16.4	-0.786
31	801	.7	17.0	-0.724
29	830	.6	17.6	-0.660
30	860	.6	18.3	-0.638
27	887	.6	18.9	-0.619
50	937	1.1	19.9	-0.609
25	962	.5	20.5	-0.584
43	1005	.9	21.4	-0.513
24	1029	.5	21.9	-0.479
32	1061	.7	22.6	-0.478
35	1096	.7	23.3	-0.458
34	1130	.7	24.0	-0.415
58	1188	1.2	25.3	-0.381
32	1220	.7	25.9	-0.339
37	1257	.8	26.7	-0.330
40	1297	.9	27.6	-0.321

CUM COUNT	CUM COUNT	PCT	PCT	THETA
31	1328	.7	28.2	-0.309
25	1353	.5	28.8	-0.273
50	1403	1.1	29.8	-0.201
49	1452	1.0	30.9	-0.196
31	1483	.7	31.5	-0.192
36	1519	.8	32.3	-0.180
34	1553	.7	33.0	-0.169
35	1588	.7	33.8	-0.149
38	1626	.8	34.6	-0.073
36	1662	.8	35.3	-0.060
31	1693	.7	36.0	-0.051
38	1731	.8	36.8	-0.050
24	1755	.5	37.3	-0.038
32	1787	.7	38.0	-0.036
2	1789	.0	38.0	-0.000
35	1824	.7	38.8	0.037
31	1855	.7	39.4	0.064
34	1889	.7	40.2	0.067
32	1921	.7	40.8	0.072
40	1961	.9	41.7	0.080
42	2003	.9	42.6	0.090
35	2038	.7	43.3	0.137
31	2069	.7	44.0	0.160
41	2110	.9	44.9	0.188
34	2144	.7	45.6	0.190
41	2185	.9	46.4	0.199
36	2221	.8	47.2	0.211
27	2248	.6	47.8	0.233
37	2285	.8	48.6	0.251
25	2310	.5	49.1	0.299
28	2338	.6	49.7	0.311
39	2377	.8	50.5	0.312
35	2412	.7	51.3	0.325
25	2437	.5	51.8	0.328
42	2479	.9	52.7	0.341
42	2521	.9	53.6	0.408
35	2556	.7	54.3	0.418
33	2589	.7	55.0	0.419
24	2613	.5	55.5	0.428
28	2641	.6	56.1	0.430
36	2677	.8	56.9	0.438
35	2712	.7	57.7	0.511
26	2738	.6	58.2	0.515
27	2765	.6	58.8	0.518
40	2805	.9	59.6	0.524
19	2824	.4	60.0	0.551
26	2850	.6	60.6	0.553
27	2877	.6	61.2	0.608
44	2921	.9	62.1	0.611
38	2959	.8	62.9	0.619
30	2989	.6	63.5	0.628
30	3019	.6	64.2	0.658
39	3058	.8	65.0	0.676

CUM COUNT	CUM COUNT	PCT	PCT	THETA
38	3096	.8	65.8	0.699
36	3132	.8	66.6	0.717
20	3152	.4	67.0	0.728
25	3177	.5	67.5	0.730
30	3207	.6	68.2	0.764

8/30/99

Item Statistics for Item Tryout ELA Form 113 (3/10/99).

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.
1	M	.01	.00	.12	.80	.05	.03	.00	.00	0.80	0.43
2	M	.00	.00	.40	.46	.09	.05	.00	.00	0.40	0.19
3	M	.01	.00	.06	.06	.70	.17	.00	.00	0.70	0.22
4	M	.00	.00	.72	.14	.04	.10	.00	.00	0.72	0.50
5	M	.00	.00	.02	.06	.02	.91	.00	.00	0.91	0.47
6	M	.01	.00	.11	.06	.80	.03	.00	.00	0.80	0.41
7	M	.00	.00	.22	.30	.03	.45	.00	.00	0.30	0.20
8	M	.00	.00	.07	.12	.80	.02	.00	.00	0.80	0.16
9	M	.00	.00	.94	.02	.01	.03	.00	.00	0.94	0.32
10	M	.00	.00	.02	.05	.03	.90	.00	.00	0.90	0.39
11	M	.00	.00	.38	.57	.01	.04	.00	.00	0.38	0.23
12	M	.01	.00	.03	.79	.03	.15	.00	.00	0.79	0.40
13	O	.00	.00	.14	.29	.30	.21	.04	.01	2.74	0.48

Item Statistics for Item Tryout ELA Form 114 (3/10/99).

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.
1	M	.00	.00	.10	.11	.10	.70	.00	.00	0.70	0.39
2	M	.00	.00	.09	.40	.04	.47	.00	.00	0.09	0.15
3	M	.00	.00	.09	.23	.28	.41	.00	.00	0.28	0.19
4	M	.00	.00	.02	.25	.64	.09	.00	.00	0.64	0.30
5	M	.01	.00	.21	.56	.04	.18	.00	.00	0.56	0.22
6	M	.00	.00	.49	.33	.02	.16	.00	.00	0.49	0.43
7	M	.00	.00	.03	.05	.03	.89	.00	.00	0.89	0.26
8	M	.00	.00	.05	.61	.26	.08	.00	.00	0.61	0.43
9	M	.00	.00	.69	.05	.17	.08	.00	.00	0.69	0.22
10	M	.01	.00	.05	.08	.04	.84	.00	.00	0.84	0.33
11	M	.00	.00	.27	.18	.49	.06	.00	.00	0.49	0.37
12	M	.02	.00	.08	.20	.61	.10	.00	.00	0.61	0.11
13	O	.00	.01	.14	.24	.28	.23	.07	.03	2.88	0.49

Item Statistics for Item Tryout ELA Form 115 (3/10/99).

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.
1	M	.00	.00	.21	.14	.63	.02	.00	.00	0.63	0.27
2	M	.00	.00	.12	.71	.14	.04	.00	.00	0.71	0.22
3	M	.00	.00	.02	.03	.04	.91	.00	.00	0.91	0.27
4	M	.00	.00	.75	.10	.08	.07	.00	.00	0.75	0.35
5	M	.00	.00	.13	.26	.39	.22	.00	.00	0.26	-.02
6	M	.00	.00	.01	.01	.96	.03	.00	.00	0.96	0.36
7	M	.00	.00	.19	.59	.05	.16	.00	.00	0.59	0.22
8	M	.00	.00	.16	.24	.58	.02	.00	.00	0.58	0.33
9	M	.00	.00	.18	.47	.04	.30	.00	.00	0.30	0.04
10	M	.00	.00	.36	.07	.46	.11	.00	.00	0.36	-0.23
11	M	.00	.00	.10	.79	.06	.05	.00	.00	0.79	0.25
12	M	.01	.00	.19	.05	.70	.04	.00	.00	0.70	0.29
13	O	.00	.02	.15	.49	.22	.08	.03	.00	2.27	0.38

Item Statistics for Item Tryout ELA Form 116 (3/10/99).

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.
1	M	.00	.00	.24	.07	.06	.63	.00	.00	0.63	0.35
2	M	.00	.00	.01	.17	.81	.02	.00	.00	0.81	-.04
3	M	.00	.00	.57	.07	.26	.10	.00	.00	0.10	0.00
4	M	.00	.00	.08	.72	.02	.17	.00	.00	0.72	0.44
5	M	.00	.00	.70	.05	.15	.10	.00	.00	0.70	0.29
6	M	.00	.00	.16	.11	.27	.45	.00	.00	0.27	0.24
7	M	.00	.00	.04	.14	.21	.61	.00	.00	0.61	0.29
8	M	.00	.00	.37	.51	.06	.06	.00	.00	0.51	0.22
9	M	.00	.00	.06	.13	.57	.24	.00	.00	0.57	0.25
10	M	.00	.00	.12	.41	.12	.35	.00	.00	0.35	0.31
11	M	.00	.00	.32	.10	.10	.48	.00	.00	0.32	0.24
12	M	.00	.00	.33	.12	.42	.13	.00	.00	0.42	0.10
13	O	.00	.02	.22	.36	.24	.11	.01	.00	2.13	0.42

Item Statistics for Item Tryout ELA Form 117 (3/10/99).

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.
1	M	.01	.00	.07	.73	.12	.09	.00	.00	0.73	0.30
2	M	.01	.00	.09	.11	.14	.66	.00	.00	0.14	0.05
3	M	.00	.00	.01	.03	.92	.05	.00	.00	0.92	0.40
4	M	.00	.00	.77	.03	.13	.07	.00	.00	0.77	0.04
5	M	.00	.00	.05	.13	.45	.38	.00	.00	0.38	0.08
6	M	.00	.00	.17	.74	.06	.03	.00	.00	0.74	0.25
7	M	.01	.00	.16	.16	.21	.47	.00	.00	0.47	0.20
8	M	.00	.00	.09	.02	.88	.01	.00	.00	0.88	0.32
9	M	.00	.00	.76	.09	.04	.11	.00	.00	0.76	0.38
10	M	.00	.00	.15	.69	.12	.04	.00	.00	0.69	0.33
11	M	.00	.00	.10	.16	.47	.26	.00	.00	0.47	0.17
12	M	.03	.00	.04	.02	.30	.61	.00	.00	0.61	0.10
13	O	.00	.02	.10	.45	.27	.10	.05	.00	2.42	0.38

Item Statistics for Item Tryout ELA Form 118 (3/10/99).

Item	Key	B	0	1	2	3	4	5	6	Mean	Cor.
1	M	.00	.00	.17	.12	.70	.02	.00	.00	0.70	0.20
2	M	.01	.00	.01	.87	.06	.06	.00	.00	0.87	0.22
3	M	.00	.00	.61	.03	.04	.32	.00	.00	0.61	0.27
4	M	.00	.00	.04	.89	.02	.05	.00	.00	0.89	0.37
5	M	.00	.00	.06	.09	.08	.78	.00	.00	0.78	0.45
6	M	.01	.00	.65	.14	.10	.10	.00	.00	0.65	0.44
7	M	.01	.00	.27	.03	.17	.53	.00	.00	0.53	0.30
8	M	.00	.00	.33	.07	.48	.13	.00	.00	0.48	0.22
9	M	.01	.00	.27	.11	.11	.49	.00	.00	0.11	-.17
10	M	.01	.00	.51	.35	.14	.00	.00	.00	0.51	0.13
11	M	.01	.00	.10	.12	.05	.74	.00	.00	0.74	0.25
12	M	.01	.00	.34	.14	.38	.13	.00	.00	0.38	0.21
13	O	.00	.03	.07	.29	.24	.19	.12	.01	2.81	0.55