New York State Regents Examination in Algebra II/Trigonometry

2012 Field Test Analysis, Equating Procedure, and Scaling of Operational Test Forms

Technical Report

Prepared for the New York State Education Department
by Pearson

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Section I: Introduction

PURPOSE

The purpose of this report is to document the psychometric work on the New York State Regents Examination in Algebra II/Trigonometry in 2012. Specifically, contained within this report are procedures for, and results of, field test analysis, equating, and scaling of operational test forms that were conducted by Pearson. Information on test development can be found in the early test design and development report for the New York State Regents Examination in Algebra II/Trigonometry.

Section II: Field Test Analysis

In May 2012, field testing was conducted for the New York State Regents Examination in Algebra II/Trigonometry to better understand the psychometric quality of the items. The results of this testing are used to help determine which items will be selected for use on operational tests.

Target student samples for participation in this testing were selected, such that each would represent the student population expected to take the operational test. The Need/Resource Capacity Categories were used as variables in the sampling plan. See Table 1 for the seven Need/Resource Capacity Categories and their definitions.

Table 1. Need/Resource Capacity Category Definitions

Need/Resource Capacity (N/RC) Category	Definition
High N/RC Districts: New York City	New York City
Large Cities	Buffalo, Rochester, Syracuse, Yonkers
Urban-Suburban	All districts at or above the 70th percentile on the index with at least 100 students per square mile or enrollment greater than 2500
Rural	All districts at or above the 70th percentile on the index with fewer than 50 students per square mile or enrollment of fewer than 2500
Average N/RC Districts	All districts between the 20th and 70th percentiles on the index
Low N/RC Districts	All districts below the 20th percentile on the index
Charter Schools	Each charter school is a district

The data collected from field testing were scored by two entities. The multiple-choice items were scored by the New York State Education Department and the constructed-response items were scored by Measurement Incorporated. Therefore, it was necessary to combine data files for data analysis. Both classical-test and item response theory analyses were conducted using the data to evaluate the quality of the test items.

FILE MERGING AND DATA CLEANUP

Field test forms contained multiple-choice and constructed-response item types. Response data were contained in two separate files. The two files were combined by merging the multiple-choice records and the constructed-response records by unique test booklet numbers. There were 34980 student records prior to data cleaning; after the exclusion rules[1] were applied, the resulting field test data file contained 34953 records.

Multiple-choice response data were then compared to the answer key. All item responses not matching the answer key were assigned scores of 0. The responses matching the answer key were assigned scores of 1. With respect to the constructed-response items, scores from 0 to the maximum point value available for each tested item were kept, while out-of-range values were assigned scores of 0. For the Item Response Theory (IRT) calibrations, blanks (i.e., missing data) were assigned scores of 0 to be consistent with how operational test items are scored.

The final data file contained both the scored and unscored student responses. Unscored data were used to calculate the percentage of students who selected the various answer choices for the multiple-choice items or the percentage of students who received the range of possible raw score points for the constructed-response items. Thus, the frequency of students leaving items blank could be calculated. The scored data were used for all other analyses.

CLASSICAL ANALYSIS

Classical Test Theory is based on the assumption that an observed test score x is composed of both true score t and error score e. This assumption is expressed as follows:

$$x = t + e$$

In other words, error is associated with measuring a student's true score. For example, the choice of test items or administration conditions might influence student responses making a student's observed score higher or lower than the student's true score. The error is considered random. After repeated administrations the mean of the error scores

[1] Exclusion rules define which test records are to be considered invalid. Such records include those without both an MC and a CR component, records with invalid or out-of-range form numbers, records without any responses, and duplicate records. These records were dropped and not included in any analyses.

is virtually zero (0). Thus, a student's observed score is expected to equal his or her true score. This expectation is expressed as follows:

$$E(x) = t$$

Using the Classical Test Theory framework, field test data can be analyzed to provide information about the quality of test items. Item difficulty, point-biserial correlations, reliability estimates, and various statistics related to rater agreement have been calculated and are summarized in the following section.

Item Difficulty

Item difficulty is an indication of students' achievement on a specific item. Because this examination contains polytomous items, item means are not appropriate for comparing difficulty across items. Instead, weighted item means were calculated by dividing an item's mean by the maximum points possible for that item.

For multiple-choice items, the item difficulty is determined by the proportion of students who answer an item correctly. If 90% of the student responses to a multiple-choice item are correct, then this item is considered easier than a multiple-choice item having correct responses from only 30% of the students.

Point-Biserial Correlation

The point-biserial correlation is another classical statistic that can be used to evaluate items. For multiple-choice items, it is the correlation between students' performance on a given item (correct or incorrect) and overall performance scores. This statistic is used to evaluate how well an item identifies students who understand the concept being measured and can be generalized for constructed-response items. The possible range for the point-biserial correlation is −1.0 to 1.0, with higher values being more desirable.

Table 2 presents a summary of the classical item analysis for each of the field test forms. The first three columns from the left identify the form number, the number of students who took each form, and the number of items on each field test form, respectively. The remaining columns are divided into two sections (i.e., item difficulty and point-biserial correlations). Recall that for constructed-response items, item means were divided by the maximum number of points possible in order to place them in the same metric as the multiple-choice items. For all items, item difficulties were equal to or below 0.90. With respect to the point-biserial correlations, relatively few fell below 0.25.

Table 2. Classical Item Analysis

			Item Difficulty			Point-Biserial		
Form	N-Count	No. of Items	<0.50	0.50 to 0.90	>0.90	<0.25	0.25 to 0.50	>0.50
901	1,099	11	5	6	0	0	7	4
902	1,095	11	6	5	0	0	7	4
903	1,077	11	9	2	0	0	7	4
904	1,091	11	9	2	0	0	7	4
905	1,095	11	8	3	0	0	7	4
906	1,104	11	8	3	0	0	7	4
907	1,105	11	8	3	0	0	8	3
908	1,107	11	7	4	0	1	7	3
909	1,102	11	7	4	0	2	6	3
910	1,089	11	9	2	0	1	6	4
911	1,108	11	9	2	0	2	5	4
912	1,104	11	5	6	0	1	8	2
913	1,097	11	9	2	0	2	7	2
914	1,086	11	9	2	0	0	8	3
915	1,101	11	8	3	0	0	7	4
916	1,082	11	8	3	0	0	7	4
917	1,086	11	9	2	0	0	7	4
918	1,092	11	8	3	0	0	8	3
919	1,095	11	10	1	0	1	7	3
920	1,114	11	8	3	0	0	7	4
921	1,097	11	7	4	0	1	6	4
922	1,098	11	8	3	0	0	6	5
923	1,084	11	7	4	0	0	7	4
924	1,105	11	10	1	0	1	6	4
925	1,104	11	8	3	0	0	7	4
926	1,085	11	8	3	0	1	6	4
927	1,093	11	6	5	0	0	7	4
928	1,076	11	7	4	0	0	7	4
929	1,074	11	9	2	0	2	5	4
930	1,074	11	9	2	0	0	7	4
931	1,065	11	9	2	0	0	9	2
932	1,069	11	7	4	0	1	7	3

In addition to the summary information provided in Table 2, further classical item statistics are provided in Appendix A. “Max” is the maximum number of possible points. “N-Count” refers to the number of student records in the analysis. “Alpha” contains the internal consistency statistics discussed below. For multiple-choice items, “B” represents the proportion of students who left the item blank and “M1” through “M4” are the proportions of students who selected each of the four answer choices. For constructed-response items, “B” represents the proportion of students who left the items blank and “M0” through “M6” are the proportions of students who received scores of 0 through 6. “Mean” is the average of the scores received by the students. The final (right-most) column contains the point-biserial correlation for each item. There are some instances of items with missing statistics; this occurs when an item was not scored.

Test Reliability

Classical analysis can also be used to measure the reliability of the test. Reliability is the consistency of the results obtained from a measurement with respect to time or among items or subjects that constitute a test. As such, test reliability can be estimated in a variety of ways. Internal consistency indices are a measure of how consistently examinees respond to items within a test. Two factors influence estimates of internal consistency: (1) test length and (2) homogeneity of the items. In general, the more items on the examination, the higher the reliability, and the more similar the items, the higher the reliability.

Cronbach's α (alpha) (Cronbach, 1951) has an important use as a measure of the internal consistency of a test. This formula is the extension of an earlier version, the Kuder-Richardson Formula 20 (KR-20; Kuder & Richardson, 1937), which is the equivalent for dichotomous items.

Table 3 contains the internal consistency statistics for all of the field test forms. These statistics range from 0.56 to 0.68 and are based solely on the items in the individual field test forms. It is expected that these statistics would be greater when these items are used operationally since operational test forms contain more items than the field test forms.

Table 3. Test and Scoring Reliability

Form Number	Test Reliability	Scoring Reliability
901	0.63	0.90
902	0.64	0.96
903	0.66	0.91
904	0.68	0.92
905	0.62	0.92
906	0.64	0.93
907	0.63	0.94
908	0.64	0.90
909	0.62	0.93
910	0.60	0.94
911	0.63	0.93
912	0.58	0.94
913	0.56	0.95
914	0.57	0.92
915	0.63	0.87
916	0.66	0.92
917	0.65	0.91
918	0.60	0.95
919	0.59	0.93
920	0.60	0.91
921	0.60	0.94
922	0.64	0.92
923	0.64	0.94
924	0.60	0.92
925	0.62	0.94
926	0.64	0.93
927	0.62	0.94
928	0.61	0.86
929	0.58	0.92
930	0.65	0.92
931	0.58	0.90
932	0.56	0.94

Scoring Reliability

One concern with constructed-response items is the reliability of the scoring process (i.e., consistency of the score assignment). Constructed-response items must be read by scorers who assign scores based on a comparison between the rubric and student responses. Consistency, in the way scores are assigned, is a critical part of the reliability of the assessment. To measure this consistency, 10% of the test booklets are scored a second time (i.e., second read scores) and compared to the original set of scores (i.e., first read scores).

As an overall measure of scoring reliability, the Pearson Correlation Coefficient between the first and second scores for each of the constructed-response items was computed. This statistic is often used as an overall indicator of scoring reliability, and generally ranges from 0.00 to near 1.00. Table 3 contains the results from these analyses in the column headed "Scoring Reliability." The correlations ranged from 0.86 to 0.96, indicating high scoring reliability.

Inter-rater Agreement

For each constructed-response item, the difference between the first and second reads was computed. When examining inter-rater agreement statistics, it should be kept in mind that the maximum number of points per item varies, as shown in the "Score Points" column of the following tables.

Table 4 contains the proportion of occurrences of these differences for each item. There were no instances of the first read and second read differing by more than 2.00.

Table 4. Point Differences Between First and Second Reads

			Difference (First Read Minus Second Read)						
Form	**Item**	**Score Points**	**−3**	**−2**	**−1**	**0**	**1**	**2**	**3**
901	08	2	0.00	0.01	0.05	0.89	0.06	0.01	0.00
901	09	2	0.00	0.01	0.05	0.84	0.08	0.01	0.00
901	10	4	0.00	0.01	0.02	0.90	0.04	0.02	0.00
901	11	4	0.00	0.06	0.12	0.68	0.09	0.05	0.00
902	08	2	0.00	0.00	0.07	0.86	0.06	0.00	0.00

Table 4. Point Differences Between First and Second Reads *(continued)*

			Difference (First Read Minus Second Read)						
Form	**Item**	**Score Points**	**−3**	**−2**	**−1**	**0**	**1**	**2**	**3**
902	09	6	0.00	0.02	0.08	0.86	0.04	0.02	0.00
902	10	2	0.00	0.00	0.05	0.88	0.07	0.00	0.00
902	11	2	0.00	0.00	0.08	0.85	0.07	0.00	0.00
903	08	2	0.00	0.00	0.11	0.80	0.09	0.00	0.00
903	09	4	0.00	0.01	0.08	0.86	0.04	0.01	0.00
903	10	4	0.00	0.02	0.08	0.80	0.06	0.04	0.00
903	11	2	0.00	0.00	0.04	0.92	0.05	0.00	0.00
904	08	4	0.00	0.02	0.03	0.86	0.04	0.04	0.00
904	09	2	0.00	0.00	0.03	0.91	0.05	0.01	0.00
904	10	2	0.00	0.00	0.03	0.94	0.04	0.00	0.00
904	11	4	0.00	0.06	0.11	0.67	0.12	0.04	0.00
905	08	2	0.00	0.00	0.07	0.85	0.07	0.00	0.00
905	09	6	0.00	0.02	0.09	0.80	0.08	0.03	0.00
905	10	2	0.00	0.00	0.03	0.94	0.02	0.00	0.00
905	11	2	0.00	0.00	0.06	0.87	0.07	0.00	0.00
906	08	4	0.00	0.00	0.02	0.94	0.04	0.01	0.00
906	09	4	0.00	0.03	0.08	0.76	0.10	0.02	0.00
906	10	2	0.00	0.00	0.04	0.90	0.06	0.00	0.00
906	11	2	0.00	0.00	0.03	0.95	0.02	0.00	0.00
907	08	2	0.00	0.01	0.08	0.85	0.07	0.01	0.00
907	09	2	0.00	0.00	0.03	0.95	0.03	0.00	0.00
907	10	6	0.00	0.04	0.12	0.68	0.13	0.02	0.00
907	11	2	0.00	0.00	0.08	0.84	0.08	0.00	0.00
908	08	2	0.00	0.00	0.04	0.88	0.07	0.00	0.00
908	09	2	0.00	0.00	0.02	0.97	0.01	0.00	0.00
908	10	4	0.00	0.00	0.09	0.80	0.07	0.03	0.00
908	11	4	0.00	0.04	0.07	0.79	0.06	0.03	0.00
909	08	2	0.00	0.01	0.07	0.89	0.04	0.00	0.00
909	09	4	0.00	0.02	0.06	0.82	0.08	0.01	0.00
909	10	2	0.00	0.00	0.03	0.94	0.03	0.00	0.00
909	11	4	0.00	0.02	0.10	0.82	0.06	0.02	0.00
910	08	2	0.00	0.00	0.04	0.91	0.06	0.00	0.00

Table 4. Point Differences Between First and Second Reads *(continued)*

			Difference (First Read Minus Second Read)						
Form	**Item**	**Score Points**	**−3**	**−2**	**−1**	**0**	**1**	**2**	**3**
910	09	2	0.00	0.01	0.05	0.90	0.05	0.00	0.00
910	10	2	0.00	0.00	0.02	0.94	0.04	0.00	0.00
910	11	6	0.00	0.04	0.07	0.77	0.09	0.04	0.00
911	08	6	0.00	0.02	0.09	0.81	0.06	0.01	0.00
911	09	2	0.00	0.00	0.04	0.92	0.05	0.00	0.00
911	10	2	0.00	0.00	0.03	0.92	0.05	0.00	0.00
911	11	2	0.00	0.00	0.06	0.93	0.01	0.00	0.00
912	08	2	0.00	0.00	0.07	0.88	0.05	0.00	0.00
912	09	2	0.00	0.01	0.06	0.89	0.05	0.01	0.00
912	10	4	0.00	0.05	0.03	0.86	0.04	0.01	0.00
912	11	4	0.00	0.02	0.05	0.85	0.06	0.01	0.00
913	08	4	0.00	0.01	0.02	0.89	0.05	0.02	0.00
913	09	2	0.00	0.01	0.03	0.94	0.03	0.00	0.00
913	10	4	0.00	0.06	0.07	0.78	0.09	0.02	0.00
913	11	2	0.00	0.00	0.05	0.92	0.04	0.00	0.00
914	08	2	0.00	0.01	0.13	0.79	0.09	0.00	0.00
914	09	4	0.00	0.02	0.09	0.86	0.03	0.01	0.00
914	10	2	0.00	0.01	0.04	0.94	0.02	0.00	0.00
914	11	4	0.00	0.00	0.07	0.83	0.08	0.02	0.00
915	08	2	0.00	0.00	0.11	0.78	0.11	0.00	0.00
915	09	6	0.00	0.02	0.09	0.78	0.08	0.03	0.00
915	10	2	0.00	0.00	0.02	0.94	0.04	0.00	0.00
915	11	2	0.00	0.00	0.05	0.91	0.03	0.00	0.00
916	08	2	0.00	0.00	0.05	0.91	0.03	0.00	0.00
916	09	4	0.00	0.01	0.05	0.85	0.09	0.01	0.00
916	10	2	0.00	0.00	0.03	0.93	0.05	0.00	0.00
916	11	4	0.00	0.02	0.11	0.82	0.03	0.03	0.00
917	08	4	0.00	0.02	0.04	0.90	0.05	0.00	0.00
917	09	2	0.00	0.00	0.05	0.87	0.08	0.00	0.00
917	10	4	0.00	0.03	0.05	0.90	0.02	0.02	0.00
917	11	2	0.00	0.00	0.03	0.90	0.06	0.01	0.00
918	08	2	0.00	0.00	0.07	0.85	0.08	0.00	0.00

Table 4. Point Differences Between First and Second Reads *(continued)*

			Difference (First Read Minus Second Read)						
Form	**Item**	**Score Points**	**−3**	**−2**	**−1**	**0**	**1**	**2**	**3**
918	09	2	0.00	0.00	0.04	0.93	0.03	0.00	0.00
918	10	2	0.00	0.00	0.02	0.96	0.01	0.00	0.00
918	11	6	0.00	0.00	0.04	0.93	0.02	0.00	0.00
919	08	4	0.00	0.01	0.08	0.83	0.07	0.01	0.00
919	09	4	0.00	0.01	0.04	0.84	0.09	0.03	0.00
919	10	2	0.00	0.00	0.02	0.96	0.03	0.00	0.00
919	11	2	0.00	0.01	0.11	0.77	0.11	0.00	0.00
920	08	2	0.00	0.00	0.02	0.95	0.03	0.00	0.00
920	09	6	0.00	0.06	0.14	0.63	0.11	0.05	0.00
920	10	2	0.00	0.01	0.05	0.90	0.03	0.00	0.00
920	11	2	0.00	0.00	0.06	0.90	0.04	0.00	0.00
921	08	2	0.00	0.00	0.04	0.91	0.04	0.00	0.00
921	09	2	0.00	0.00	0.05	0.82	0.12	0.00	0.00
921	10	4	0.00	0.01	0.04	0.88	0.06	0.02	0.00
921	11	4	0.00	0.01	0.08	0.80	0.09	0.02	0.00
922	08	4	0.00	0.02	0.05	0.85	0.07	0.02	0.00
922	09	2	0.00	0.01	0.10	0.80	0.10	0.00	0.00
922	10	2	0.00	0.00	0.05	0.87	0.07	0.01	0.00
922	11	2	0.00	0.01	0.07	0.82	0.11	0.01	0.00
923	08	4	0.00	0.02	0.09	0.79	0.08	0.02	0.00
923	09	4	0.00	0.02	0.05	0.87	0.05	0.01	0.00
923	10	2	0.00	0.00	0.08	0.82	0.10	0.01	0.00
923	11	2	0.00	0.00	0.06	0.87	0.08	0.00	0.00
924	08	2	0.00	0.00	0.05	0.89	0.06	0.00	0.00
924	09	4	0.00	0.02	0.08	0.77	0.09	0.04	0.00
924	10	4	0.00	0.01	0.08	0.83	0.06	0.01	0.00
924	11	2	0.00	0.00	0.06	0.90	0.04	0.00	0.00
925	08	2	0.00	0.00	0.06	0.90	0.04	0.00	0.00
925	09	4	0.00	0.03	0.02	0.89	0.04	0.02	0.00
925	10	2	0.00	0.00	0.04	0.93	0.03	0.00	0.00
925	11	4	0.00	0.01	0.08	0.82	0.05	0.04	0.00
926	08	4	0.00	0.01	0.08	0.80	0.11	0.01	0.00

Table 4. Point Differences Between First and Second Reads *(continued)*

			Difference (First Read Minus Second Read)						
Form	Item	Score Points	−3	−2	−1	0	1	2	3
926	09	2	0.00	0.00	0.01	0.96	0.03	0.00	0.00
926	10	2	0.00	0.00	0.05	0.91	0.04	0.00	0.00
926	11	4	0.00	0.02	0.09	0.80	0.06	0.04	0.00
927	08	2	0.00	0.00	0.06	0.87	0.06	0.01	0.00
927	09	2	0.00	0.01	0.04	0.89	0.07	0.00	0.00
927	10	6	0.00	0.04	0.12	0.74	0.10	0.01	0.00
927	11	2	0.00	0.01	0.08	0.88	0.03	0.00	0.00
928	08	2	0.00	0.01	0.02	0.94	0.03	0.00	0.00
928	09	4	0.00	0.02	0.02	0.92	0.04	0.01	0.00
928	10	4	0.00	0.03	0.10	0.77	0.08	0.02	0.00
928	11	2	0.00	0.03	0.07	0.76	0.13	0.01	0.00
929	08	4	0.00	0.03	0.12	0.77	0.06	0.02	0.00
929	09	2	0.00	0.01	0.03	0.92	0.04	0.00	0.00
929	10	4	0.00	0.02	0.06	0.79	0.10	0.03	0.00
929	11	2	0.00	0.00	0.08	0.85	0.07	0.00	0.00
930	08	4	0.00	0.03	0.05	0.82	0.08	0.02	0.00
930	09	2	0.00	0.00	0.04	0.92	0.03	0.01	0.00
930	10	2	0.00	0.00	0.04	0.91	0.05	0.00	0.00
930	11	4	0.00	0.02	0.14	0.72	0.09	0.03	0.00
931	08	2	0.00	0.00	0.04	0.93	0.03	0.00	0.00
931	09	6	0.00	0.01	0.03	0.88	0.08	0.02	0.00
931	10	2	0.00	0.01	0.08	0.81	0.09	0.02	0.00
931	11	2	0.00	0.00	0.09	0.78	0.12	0.00	0.00
932	08	2	0.00	0.01	0.04	0.88	0.08	0.00	0.00
932	09	4	0.00	0.02	0.06	0.82	0.08	0.02	0.00
932	10	4	0.00	0.02	0.11	0.76	0.09	0.03	0.00
932	11	2	0.00	0.00	0.10	0.83	0.07	0.00	0.00

Table 5 contains additional summary information regarding the first and second reads. In the fifth column from the left, the percent of exact matches between the first and second scores is provided. “Adj.” is the percentage of differences with a magnitude of 1. “Total” is the sum of the two prior columns and contains values between 88.6% and 100%. These values indicate a high degree of agreement.

Table 5. First and Second Read Descriptive Statistics and Agreement

				Agreement (%)			Raw Score Mean		Raw Score Standard Deviation			
Form	Item	Score Points	Total N-Count	Exact	Adj.	Total	First Read	Second Read	First Read	Second Read	Intra-Class Corre-lation	Wt Kappa
901	08	2	199	88.9	10.1	99.0	1.1	1.1	0.92	0.93	0.92	0.87
901	09	2	203	84.2	13.8	98.0	1.0	1.0	0.93	0.93	0.87	0.82
901	10	4	202	89.6	6.4	96.0	0.8	0.8	1.34	1.34	0.94	0.88
901	11	4	196	67.9	21.4	89.3	1.5	1.6	1.52	1.63	0.87	0.75
902	08	2	204	85.8	13.7	99.5	0.6	0.6	0.77	0.77	0.87	0.81
902	09	6	197	85.8	11.2	97.0	1.4	1.4	2.26	2.28	0.98	0.92
902	10	2	200	88.0	12.0	100.0	0.6	0.5	0.82	0.78	0.91	0.84
902	11	2	200	85.0	15.0	100.0	0.9	0.9	0.91	0.90	0.91	0.84
903	08	2	198	79.8	20.2	100.0	0.4	0.4	0.66	0.66	0.77	0.66
903	09	4	202	85.6	11.9	97.5	0.6	0.6	1.16	1.17	0.92	0.83
903	10	4	194	79.9	14.4	94.3	1.2	1.2	1.47	1.49	0.91	0.83
903	11	2	200	92.0	8.0	100.0	0.4	0.4	0.74	0.74	0.93	0.88
904	08	4	201	85.6	7.5	93.0	1.6	1.6	1.76	1.75	0.94	0.88
904	09	2	198	91.4	8.1	99.5	0.4	0.4	0.72	0.70	0.90	0.86
904	10	2	199	94.0	6.0	100.0	0.9	0.9	0.65	0.66	0.93	0.91
904	11	4	203	67.5	22.7	90.1	1.6	1.6	1.51	1.50	0.86	0.74
905	08	2	203	85.2	14.3	99.5	0.5	0.5	0.71	0.71	0.84	0.77
905	09	6	200	79.5	16.0	95.5	1.0	0.9	1.76	1.73	0.94	0.83
905	10	2	203	94.1	5.4	99.5	0.2	0.3	0.62	0.63	0.91	0.85
905	11	2	195	87.2	12.8	100.0	0.6	0.6	0.71	0.70	0.87	0.82
906	08	4	197	93.9	5.6	99.5	0.2	0.2	0.62	0.59	0.90	0.79
906	09	4	201	76.1	18.4	94.5	1.2	1.2	1.54	1.57	0.92	0.82
906	10	2	204	90.2	9.8	100.0	0.4	0.3	0.70	0.68	0.90	0.82
906	11	2	201	94.5	5.0	99.5	0.3	0.3	0.59	0.60	0.90	0.87
907	08	2	197	84.8	14.2	99.0	0.6	0.6	0.78	0.79	0.85	0.79
907	09	2	190	94.7	5.3	100.0	1.2	1.2	0.84	0.84	0.96	0.94
907	10	6	208	68.3	25.5	93.8	1.8	1.8	2.02	2.03	0.94	0.82
907	11	2	209	84.2	15.8	100.0	0.7	0.7	0.80	0.80	0.88	0.81
908	08	2	206	87.9	11.7	99.5	0.7	0.7	0.85	0.84	0.91	0.85

Table 5. First and Second Read Descriptive Statistics and Agreement *(continued)*

				Agreement (%)			Raw Score Mean		Raw Score Standard Deviation			
Form	Item	Score Points	Total N-Count	Exact	Adj.	Total	First Read	Second Read	First Read	Second Read	Intra-Class Corre-lation	Wt Kappa
908	09	2	200	97.0	3.0	100.0	0.2	0.2	0.61	0.63	0.96	0.93
908	10	4	202	80.2	16.3	96.5	0.8	0.7	1.16	1.18	0.89	0.79
908	11	4	204	78.9	13.2	92.2	1.0	1.0	1.39	1.41	0.89	0.79
909	08	2	200	89.0	10.5	99.5	0.3	0.3	0.59	0.62	0.83	0.76
909	09	4	205	82.0	14.6	96.6	1.3	1.3	1.67	1.67	0.95	0.87
909	10	2	201	93.5	6.0	99.5	0.6	0.6	0.84	0.82	0.94	0.92
909	11	4	199	81.9	15.1	97.0	0.4	0.5	0.88	0.97	0.85	0.71
910	08	2	200	90.5	9.5	100.0	0.6	0.5	0.83	0.81	0.93	0.88
910	09	2	199	89.9	9.5	99.5	0.2	0.2	0.54	0.55	0.80	0.71
910	10	2	202	93.6	6.4	100.0	0.7	0.6	0.74	0.73	0.94	0.92
910	11	6	200	76.5	15.5	92.0	1.6	1.6	1.95	1.89	0.94	0.84
911	08	6	201	80.6	15.4	96.0	0.9	0.9	1.51	1.50	0.93	0.82
911	09	2	199	92.0	8.0	100.0	0.3	0.3	0.60	0.60	0.89	0.84
911	10	2	207	92.3	7.7	100.0	0.6	0.6	0.81	0.80	0.94	0.90
911	11	2	202	92.6	7.4	100.0	0.8	0.8	0.79	0.80	0.94	0.91
912	08	2	205	87.8	12.2	100.0	0.7	0.7	0.63	0.61	0.84	0.81
912	09	2	200	89.0	10.0	99.0	0.3	0.3	0.58	0.58	0.79	0.75
912	10	4	204	85.8	7.8	93.6	2.0	2.1	1.78	1.76	0.95	0.89
912	11	4	201	84.6	11.9	96.5	0.5	0.5	1.06	1.07	0.89	0.78
913	08	4	201	88.6	8.0	96.5	1.8	1.8	1.88	1.88	0.97	0.92
913	09	2	196	93.9	5.6	99.5	0.9	0.9	0.90	0.91	0.95	0.93
913	10	4	200	77.5	15.0	92.5	0.8	0.9	1.33	1.38	0.88	0.77
913	11	2	200	92.0	8.0	100.0	0.3	0.3	0.61	0.61	0.89	0.84
914	08	2	200	78.5	21.0	99.5	0.5	0.5	0.63	0.66	0.73	0.65
914	09	4	200	86.0	12.0	98.0	0.9	0.9	1.43	1.45	0.95	0.88
914	10	2	196	93.9	5.1	99.0	0.5	0.6	0.86	0.86	0.94	0.91
914	11	4	198	83.3	15.2	98.5	0.8	0.7	1.23	1.24	0.93	0.84
915	08	2	199	77.9	22.1	100.0	0.6	0.6	0.78	0.79	0.82	0.71
915	09	6	206	77.7	17.0	94.7	0.5	0.5	1.09	0.99	0.82	0.65

Table 5. First and Second Read Descriptive Statistics and Agreement *(continued)*

				Agreement (%)			Raw Score Mean		Raw Score Standard Deviation			
Form	Item	Score Points	Total N-Count	Exact	Adj.	Total	First Read	Second Read	First Read	Second Read	Intra-Class Corre-lation	Wt Kappa
915	10	2	202	93.6	6.4	100.0	0.5	0.5	0.82	0.81	0.95	0.91
915	11	2	206	91.3	8.3	99.5	0.5	0.5	0.74	0.76	0.91	0.87
916	08	2	203	90.6	8.9	99.5	0.6	0.6	0.80	0.80	0.92	0.88
916	09	4	195	84.6	13.8	98.5	0.8	0.8	1.36	1.38	0.95	0.86
916	10	2	197	92.9	7.1	100.0	0.7	0.7	0.89	0.89	0.96	0.92
916	11	4	200	81.5	13.5	95.0	0.8	0.9	1.15	1.16	0.87	0.79
917	08	4	193	89.6	8.3	97.9	0.9	0.9	1.38	1.41	0.96	0.91
917	09	2	195	87.2	12.8	100.0	0.5	0.4	0.64	0.63	0.84	0.79
917	10	4	200	90.0	6.0	96.0	0.2	0.3	0.72	0.76	0.80	0.67
917	11	2	198	89.9	9.1	99.0	0.6	0.6	0.83	0.82	0.91	0.87
918	08	2	203	84.7	14.8	99.5	0.8	0.8	0.85	0.85	0.88	0.82
918	09	2	204	93.1	6.9	100.0	0.6	0.6	0.71	0.71	0.93	0.91
918	10	2	204	96.1	3.4	99.5	0.6	0.6	0.83	0.83	0.96	0.95
918	11	6	201	93.0	6.0	99.0	0.5	0.5	1.43	1.45	0.98	0.91
919	08	4	203	83.3	14.8	98.0	1.2	1.2	1.56	1.60	0.95	0.88
919	09	4	200	84.0	12.5	96.5	0.8	0.7	1.21	1.15	0.91	0.82
919	10	2	196	95.9	4.1	100.0	0.2	0.2	0.44	0.42	0.89	0.88
919	11	2	197	77.2	22.3	99.5	0.8	0.8	0.75	0.76	0.79	0.71
920	08	2	200	95.0	5.0	100.0	0.4	0.4	0.72	0.71	0.95	0.91
920	09	6	201	62.7	25.9	88.6	1.6	1.6	1.63	1.62	0.86	0.72
920	10	2	209	90.4	8.6	99.0	0.6	0.7	0.89	0.89	0.92	0.88
920	11	2	200	90.0	10.0	100.0	0.6	0.6	0.80	0.80	0.92	0.88
921	08	2	201	90.5	9.0	99.5	0.7	0.7	0.87	0.88	0.93	0.89
921	09	2	203	81.8	17.7	99.5	0.8	0.7	0.85	0.86	0.87	0.79
921	10	4	198	88.4	9.1	97.5	1.4	1.3	1.64	1.62	0.96	0.92
921	11	4	206	79.6	17.0	96.6	1.4	1.4	1.58	1.56	0.94	0.86
922	08	4	200	85.0	12.0	97.0	1.7	1.7	1.50	1.50	0.95	0.89
922	09	2	199	79.9	19.6	99.5	0.3	0.3	0.59	0.60	0.69	0.60
922	10	2	197	87.3	12.2	99.5	0.7	0.6	0.80	0.79	0.89	0.84

Table 5. First and Second Read Descriptive Statistics and Agreement *(continued)*

				Agreement (%)			Raw Score Mean		Raw Score Standard Deviation			
Form	Item	Score Points	Total N-Count	Exact	Adj.	Total	First Read	Second Read	First Read	Second Read	Intra-Class Corre-lation	Wt Kappa
922	11	2	195	81.5	17.4	99.0	0.6	0.6	0.75	0.73	0.80	0.74
923	08	4	196	78.6	17.3	95.9	1.2	1.2	1.52	1.56	0.93	0.84
923	09	4	199	87.4	10.1	97.5	1.2	1.3	1.63	1.63	0.96	0.91
923	10	2	198	82.3	17.2	99.5	0.7	0.6	0.84	0.82	0.86	0.78
923	11	2	200	87.0	13.0	100.0	0.5	0.5	0.80	0.80	0.90	0.83
924	08	2	198	89.4	10.6	100.0	0.3	0.3	0.68	0.66	0.88	0.81
924	09	4	199	77.4	16.6	94.0	1.1	1.0	1.31	1.31	0.88	0.79
924	10	4	203	83.3	14.3	97.5	1.2	1.2	1.45	1.46	0.94	0.87
924	11	2	207	89.9	10.1	100.0	0.5	0.5	0.78	0.79	0.92	0.86
925	08	2	199	90.5	9.5	100.0	0.7	0.7	0.90	0.91	0.94	0.90
925	09	4	201	89.1	6.0	95.0	1.0	1.0	1.47	1.47	0.94	0.89
925	10	2	202	92.6	6.9	99.5	0.4	0.4	0.62	0.63	0.89	0.86
925	11	4	208	82.2	12.5	94.7	1.2	1.1	1.67	1.65	0.94	0.86
926	08	4	194	80.4	18.6	99.0	0.6	0.6	1.11	1.14	0.91	0.79
926	09	2	192	96.4	3.6	100.0	0.5	0.5	0.68	0.66	0.96	0.94
926	10	2	194	90.7	9.3	100.0	1.3	1.3	0.86	0.84	0.94	0.89
926	11	4	190	80.0	14.7	94.7	0.8	0.8	1.42	1.39	0.91	0.80
927	08	2	191	87.4	12.0	99.5	0.6	0.6	0.82	0.82	0.89	0.84
927	09	2	195	88.7	10.8	99.5	0.3	0.3	0.61	0.59	0.82	0.74
927	10	6	199	73.9	21.6	95.5	2.0	2.1	1.92	1.92	0.95	0.84
927	11	2	192	88.0	10.9	99.0	0.5	0.6	0.80	0.81	0.89	0.83
928	08	2	187	93.6	5.3	98.9	0.7	0.7	0.92	0.92	0.94	0.92
928	09	4	196	92.3	5.6	98.0	0.2	0.2	0.78	0.79	0.89	0.77
928	10	4	193	76.7	18.7	95.3	0.6	0.7	1.18	1.17	0.87	0.72
928	11	2	194	76.3	20.6	96.9	0.4	0.4	0.66	0.68	0.63	0.55
929	08	4	191	77.5	17.8	95.3	1.2	1.3	1.65	1.67	0.93	0.84
929	09	2	185	91.9	7.6	99.5	0.9	0.9	0.96	0.97	0.95	0.91
929	10	4	192	78.6	16.1	94.8	0.7	0.6	1.19	1.23	0.87	0.75
929	11	2	189	85.2	14.8	100.0	0.4	0.4	0.69	0.68	0.84	0.74

Table 5. First and Second Read Descriptive Statistics and Agreement *(continued)*

				Agreement (%)			Raw Score Mean		Raw Score Standard Deviation			
Form	Item	Score Points	Total N-Count	Exact	Adj.	Total	First Read	Second Read	First Read	Second Read	Intra-Class Corre-lation	Wt Kappa
930	08	4	195	82.1	12.8	94.9	1.0	1.0	1.46	1.48	0.92	0.84
930	09	2	182	92.3	7.1	99.5	0.4	0.4	0.71	0.68	0.90	0.87
930	10	2	192	91.1	8.9	100.0	0.9	0.9	0.94	0.94	0.95	0.91
930	11	4	191	72.3	23.0	95.3	0.9	0.9	1.36	1.32	0.88	0.75
931	08	2	190	92.6	7.4	100.0	0.1	0.1	0.37	0.40	0.76	0.67
931	09	6	192	87.5	10.4	97.9	0.7	0.7	1.55	1.46	0.96	0.88
931	10	2	187	80.7	17.1	97.9	0.4	0.4	0.73	0.71	0.75	0.66
931	11	2	190	78.4	21.6	100.0	0.6	0.6	0.72	0.74	0.80	0.71
932	08	2	183	88.0	11.5	99.5	0.4	0.4	0.68	0.71	0.86	0.80
932	09	4	191	82.2	14.1	96.3	1.8	1.8	1.79	1.78	0.95	0.89
932	10	4	188	75.5	19.7	95.2	1.2	1.2	1.62	1.63	0.93	0.82
932	11	2	189	83.1	16.9	100.0	0.2	0.2	0.52	0.52	0.68	0.54

*Adj. = Difference of 1

Constructed-Response Item Means and Standard Deviations

The average score for each constructed-response item was computed based on the first and second reads. In addition, the standard deviation of the scores was computed.

Table 5 contains the means and standard deviations for the first and second read scores. The largest difference between the item means for the first and second read scores was 0.1, while there were minimal differences among the standard deviations.

Intraclass Correlation

The intraclass correlation was computed for each item. This correlation is an estimate of the reliability of scoring based on an average of the first and second read scores. Correlations greater than 0.60 are considered very strong because they explain more than one-third of the variance in the scores. All items had intraclass correlations greater than, or equal to, 0.63 (see Table 5). Consistent with other information provided in the table, these values indicate a very high level of scoring reliability.

Weighted Kappa

Weighted Kappa (Cohen, 1968) was calculated for each item based on the first and second reads. This statistic produces an estimate of the reliability of the score classifications relative to what would be expected to occur by chance.

Weighted Kappa is an estimate of the reliability of the score classifications. That is, the Kappa statistic is a measure of reproducibility for categorical data. Guidelines for the evaluation of this statistic are:

- $k > 0.75$ denotes excellent reproducibility
- $0.4 < k \leq 0.75$ denotes good reproducibility
- $0 < k \leq 0.4$ denotes marginal reproducibility

The results found in Table 5 show a high degree of consistency between the first and second reads. The Weighted Kappa statistics ranged from 0.54 to 0.94, which in all cases indicates good-to-excellent reproducibility.

Based on the scoring reliability analyses, there is strong evidence that the scoring of the constructed-response items was performed in a highly reliable manner.

ITEM RESPONSE THEORY (IRT) STATISTICS

As discussed above, the item mean is a statistic used to evaluate item difficulty. However, many different test forms are used during field testing, and different samples of students are responding to these items. The average ability of the different samples of students varies, and a direct comparison of item means across test forms may lead to inaccurate interpretations. Therefore, Item Response Theory (IRT) was also used to evaluate item difficulty.

Specifically, the Rasch Partial Credit Model (PCM) (Masters, 1982) was used. With the use of this model, the difficulty of items and the ability of examinees are placed on the same metric. Thus, the difficulty of an item and the ability of a person can be meaningfully compared across field test forms. Also, the use of this model provides greater flexibility in situations where different samples or test forms are used because the parameters generated are generally not considered to be sample dependent or test dependent. A description of this model, results of the item calibration, and item fit evaluation are presented below.

The PCM provides an overall difficulty estimate for each item. Specifically, for constructed-response items when there are several points possible, individual estimates of difficulty for each of the possible score points are also calculated (i.e., step values). Each step value represents the difficulty of a student receiving a particular score point, given that he or she has already received the prior score point. For example, if a 3-point item had step values of −1.0, 1.0, and 0.0, one could say that it is relatively easy to obtain a score of 1. However, it is much more difficult to obtain a 2 given that the

student has the ability to score a 1 because the difference in difficulty between a 1 and a 2 is much greater than the difference between a 0 and a 1. Also, the difference between a 2 and a 3 is not as great as the difference between a 1 and a 2. Thus, with this example, a small step is needed to go from a 0 to a 1, a large step is needed to move from a 1 to a 2, and a moderate step is needed to proceed from a 2 to a 3.

Item Calibration

As discussed above, the use of Rasch item difficulty statistics provides an advantage over the use of classical item means because they can be compared across test forms. Students from different samples responded to the various test forms. Although the samples were selected to be similar with respect to student ability, there were differences. By equating the test forms (see the Equating Procedure section below), the Rasch item difficulties account for those differences and these statistics can be compared across test forms.

Rasch item difficulty values generally range from −3.00 to 3.00. An item with a Rasch difficulty greater than 2.00 is considered very difficult and should be examined carefully. If the item is measuring an important concept that students are having difficulty with, then the item can be useful. However, if the item is measuring a trivial concept or is written in a confusing manner, then it might not be appropriate to use on an operational test form. Likewise, any item with a Rasch difficulty less than −2.00 is considered very easy and usually provides little information regarding student achievement. The vast majority of test items should range between −2.00 and 2.00. This range represents approximately two standard deviations around the average difficulty of 0.00. Thus, one would expect that, based on chance, roughly 5% of the items will fall outside of that range and, therefore, these are items that should be closely examined for content.

Item Fit Evaluation

The INFIT statistic is used to determine whether items are functioning in a way that is congruent with the assumptions of the Rasch model. Under these assumptions, how a student will respond to an item depends on the proficiency of the student and the difficulty of the item, both of which are on the same measurement scale. If an item is as difficult as a student is able, the student will have a 50% chance of getting the item correct. If a student is more able than an item is difficult, under the assumptions of the Rasch model, that student has a greater than 50% chance of correctly answering the item. On the other hand, if the item is more difficult than the student is able, he or she has a less than 50% chance of correctly responding to the item. Rasch fit statistics estimate the extent to which an item is functioning in this predicted manner. Items showing a poor fit with the Rasch model typically have values outside the range of 0.70 to 1.30.

Table 6 contains a summary of the Partial-Credit Model item analysis for each of the field test forms. The left-most column lists the form numbers. The next two columns list

the number of students who participated and the number of items on each field test form, respectively. The remaining columns are divided into two sections. The first section pertains to the Rasch item difficulty values, while the second pertains to the INFIT statistics. Nearly all of the items fell within the moderate −2.00 to 2.00 difficulty range, and no items had an INFIT statistic outside the typical range.

Table 6. Partial-Credit Model Item Analysis

			Rasch			INFIT		
Form	**N-Count**	**No. of Items**	**<−2.0**	**−2.0 to 2.0**	**>2.0**	**<−0.70**	**−0.70 to 1.30**	**>1.30**
901	1,099	11	0	11	0	0	11	0
902	1,095	11	0	11	0	0	11	0
903	1,077	11	1	10	0	0	11	0
904	1,091	11	0	11	0	0	11	0
905	1,095	11	0	11	0	0	11	0
906	1,104	11	0	11	0	0	11	0
907	1,105	11	0	11	0	0	11	0
908	1,107	11	0	11	0	0	11	0
909	1,102	11	0	11	0	0	11	0
910	1,089	11	0	11	0	0	11	0
911	1,108	11	1	10	0	0	11	0
912	1,104	11	0	11	0	0	11	0
913	1,097	11	0	11	0	0	11	0
914	1,086	11	0	11	0	0	11	0
915	1,101	11	0	11	0	0	11	0
916	1,082	11	0	11	0	0	11	0
917	1,086	11	0	11	0	0	11	0
918	1,092	11	0	11	0	0	11	0
919	1,095	11	0	10	1	0	11	0
920	1,114	11	0	11	0	0	11	0
921	1,097	11	0	11	0	0	11	0
922	1,098	11	1	10	0	0	11	0
923	1,084	11	0	11	0	0	11	0
924	1,105	11	0	11	0	0	11	0
925	1,104	11	0	11	0	0	11	0
926	1,085	11	0	11	0	0	11	0
927	1,093	11	0	11	0	0	11	0

Table 6. Partial-Credit Model Item Analysis *(continued)*

			Rasch			INFIT		
Form	N-Count	No. of Items	<−2.0	−2.0 to 2.0	>2.0	<−0.70	−0.70 to 1.30	>1.30
928	1,076	11	0	11	0	0	11	0
929	1,074	11	0	11	0	0	11	0
930	1,074	11	0	11	0	0	11	0
931	1,065	11	0	11	0	0	11	0
932	1,069	11	0	11	0	0	11	0

Further individual IRT item statistics are provided in Appendix B. The column entitled "RID" contains the Rasch item difficulty statistics. S1–S6 contain the step values for the constructed-response items. Finally, "INFIT" contains the INFIT statistic for each item.

DIFFERENTIAL ITEM FUNCTIONING (DIF) STATISTICS

Statistical procedures are employed to observe whether, on the basis of data, there exists the possibility of unfair treatment of different populations. DIF statistics are used to identify items for which members of a focal group have a different probability of getting the items correct than do members of a reference group after the groups have been matched as to ability level on the test.

For the multiple-choice items, the Mantel-Haenszel Delta (MHD) DIF statistics were computed (Dorans & Holland, 1992) to classify test items in three levels of DIF for each comparison: (A) negligible DIF, (B) moderate DIF, and (C) large DIF. An item was flagged if it exhibited a B or C category of DIF, using the following rules derived from the National Assessment of Educational Progress (NAEP) guidelines (Allen, Carlson, & Zalanak, 1999):

- MHDs not significantly different from 0.00 (based on alpha = 0.05) **or** |MHD| < 1.00 are classified as A.
- MHDs significantly different from 0.00 and {|MHD| ≥ 1.00 and < 1.50} **or** MHDs not significantly different from 0 and |MHD| ≥ 1.00 are classified as B.
- |MHD| ≥ 1.5 and significantly different from 0.00 are classified as C.

For the constructed-response items, the effect size (ES) of the standardized mean difference (SMD) was used to flag the DIF. The SMD reflects the size of the differences in performance on constructed-response items between student groups matched on the total score. It is the difference between the unweighted item mean of the focal group and the weighted item mean of the reference group. The weights applied to the reference group are applied so that the weighted number of reference-group students is

the same as that in the focal group (within the same ability group). The SMD is divided by the total group item standard deviation to get a measure of the ES for the SMD. The SMD effect size groups each item into one of three categories: (AA) negligible DIF, (BB) moderate DIF, and (CC) large DIF. Only categories BB and CC were flagged in the results.

- Probability is > 0.05 **or** if |ES| is ≤ 0.17, the SMD ES group is classified as AA.
- Probability is > 0.05 and if 0.17 < |ES| ≤ 0.25, the SMD ES group is classified as BB.
- Probability is > 0.05 and if |ES| is > 0.25, the SMD ES group is classified as CC.

Although DIF statistics are typically conducted by gender and ethnicity, the low N-counts for ethnic subgroups did not allow for these statistics to be meaningful. The N-counts for gender allowed for comparisons to be made, but they were still somewhat low, so resulting statistics should be interpreted with caution.

The DIF statistics for gender are shown in Appendix C. Flagging of items appears in the "DIF Category" column, and if an item is flagged, the "Favored Group" column indicates which gender is favored.

Section III: Equating Procedure

The 2012 field test administration for the New York State Regents Examination in Algebra II/Trigonometry consisted of 30 field test forms numbered 903–932 and two anchor forms labeled 901 and 902. The field test forms contained multiple-choice and constructed-response items. Each student participating in the field test was administered one of the 32 test forms. The test forms were spiraled within the classroom so that the groups of students taking each form were equivalent. A complete listing of these field test forms can be seen in Appendix A, where item type (e.g., multiple-choice, constructed-response) and the maximum points for each item are displayed.

EQUIVALENT-GROUP EQUATING DESIGN

The anchor forms were equated to the item bank using a common-item equating design. The anchor-item difficulty parameters were fixed to their 2011 item bank values. This places the item difficulty and the ability estimates of the students taking the anchor forms onto the item bank scale. After the anchor forms were placed onto the bank scale, the average of the two mean ability estimates for the two forms was computed using the ability estimates of nonextreme students. This average ability estimate was used to equate the remaining field test forms, as well as to update the item parameters for the anchor forms.

As a part of the anchor-item equating, an item-stability check was performed. After fixing all of the items to their 2011 bank values, any item with a displacement value with a magnitude greater than 0.30 was no longer fixed and the test form was reanalyzed. If more than one item had a displacement value with a magnitude greater than 0.30, then the item with the largest displacement was freed and the test form was reanalyzed. In a stepwise fashion, this procedure was repeated until all remaining fixed-anchor items had displacements with magnitudes of less than, or equal to, 0.30.

Applying the anchor item-stability check to each of the anchor forms resulted in a few items having a displacement value with a magnitude greater than 0.30. For form 901, one item was freed. This indicates a strong level of stability in the items used on the anchor forms.

The equated mean ability estimate for form 901 was −0.10 and for form 902 the mean was −0.15. This produced a target mean ability estimate of −0.12, which was used for the remainder of the equating process.

After the anchor forms were equated and the target mean was computed, the field test forms were equated using the equivalent-groups design. The first step was to calibrate each form separately where all the item parameters were free to estimate (without constraint). From those initial calibrations, the mean ability estimates for each field test form were obtained. The second step was to determine the equating constant for each form by subtracting the mean ability for a given field test form from the target mean ability calculated from the anchor forms (i.e., forms 901 and 902). The respective equating constant was then added to each of the item parameters on a given form. If the resulting mean of the ability estimates for those students did not equal that of the target mean, then the procedure was repeated until the mean abilities for each of the field test forms equaled the target mean ability. Table 7 shows the mean abilities and constants used for the equating.

Table 7. Initial Mean Abilities and Equating Constants

Form Number	Mean Ability	Constant
901	0.14	−0.24
902	−0.07	−0.04
903	−0.48	0.34
904	−0.45	0.31
905	−0.57	0.42
906	−0.51	0.37
907	−0.12	0.00
908	−0.38	0.25
909	−0.31	0.18
910	−0.67	0.53
911	−0.61	0.46
912	−0.08	−0.04
913	−0.54	0.39
914	−0.68	0.53
915	−0.42	0.29
916	−0.24	0.12
917	−0.63	0.48
918	−0.41	0.28
919	−0.98	0.81
920	−0.42	0.29
921	−0.03	−0.09
922	−0.26	0.13
923	−0.31	0.18
924	−0.82	0.66
925	−0.15	0.02
926	−0.41	0.28
927	−0.14	0.02
928	−0.47	0.34
929	−0.53	0.39
930	−0.45	0.31
931	−0.67	0.53
932	−0.29	0.16

The equated item parameters for the field test items can now be compared across test forms, given that the equating process places all items on the same scale. In addition, when items are combined to form unique operational test forms, raw score-to-scale score tables can be generated based on these parameters. The following section contains a description of the development of the operational test forms and scoring tables.

Section IV: Scaling of Operational Test Forms

Operational test items are selected based on content coverage, content accuracy, and statistical quality. The sets of items on each operational test conform to the coverage suggested by content experts. These expert judgments are based on the learning standards established by the New York State Education Department. With respect to statistical quality, classical and Rasch statistics are examined to determine how well items function. Also, items are selected such that they range in difficulty in order to measure students across ability levels. Appendix D contains the 2012 operational test maps with content information regarding each item included on the January 2012 and June 2012 operational test forms.

In order to limit wide fluctuations of raw scores that correspond to scale scores of 65 and 85 across administrations, the average Rasch item difficulty for the operational test is considered. For this examination, an average Rasch difficulty of approximately 0.031 is used as a target for each administration. In most cases, meeting this target will provide raw scores of similar magnitude to other forms. However, differences with these scores also occur due to the distribution of the Rasch item difficulty parameters.

Scoring tables display the relationship between raw scores on the operational test and assigned scale scores. Appendix E contains the scoring tables used for the January 2012 and June 2012 operational test forms. Four steps are taken in order to produce these tables and resulting conversion charts.

The first step is to develop a raw score (i.e., number of points on the test form) to theta (i.e., student ability) to scale score relationship for the baseline operational test form. This relationship is determined when standards are set and are then used for every administration moving forward until the standards are revisited. The baseline target was determined by the New York State Education Department to be June 2010. The raw score-to-theta relationship from that examination was used, and then scale scores were calculated based on the raw score cuts according to the following formula:

$$p(x) = m_3x^3 + m_2x^2 + m_1x + m_0$$

The raw score of zero was assigned a scale score of zero (0) and the maximum raw score was assigned a scale score of 100. The raw scores corresponding to the scale scores of 65 and 85 were also fixed. The polynomial relationship shown above was then used to assign all scale scores to the remaining raw scores. The resulting values for

m_1–m_3 are the transformation constants used to produce the final raw score-to-scale-score table.

The second step is to develop a raw score-to-theta relationship for the new operational test form, using the field test equated PCM item parameters. This is accomplished by doing a calibration where all items are anchored to their field test parameters. The number of points on the test form (i.e., raw score) expected across student ability levels is based on the difficulty of the items on the form. Thus, given a particular student ability level (i.e., theta), if the points are more difficult to earn on the new test than the points on the June 2010 test, the number of points expected of this student on the new test will be less than the number of points expected of this student on the baseline form.

The third step is to use linear interpolation to determine the raw score-to-theta-to-scale score relationship for the new test. The theta values associated with scale scores of 65 and 85 on the baseline form are used along with the raw score-to-theta relationship developed in the previous step. In other words, the baseline 65 and 85 theta values are used as reference points and linear interpolation assigns the other scale scores.

Finally, a conversion chart is created based on the scoring table generated in the third step. Scale scores are rounded to the nearest whole number in all cases except for 0, 65, 85, and 100. A raw score of zero (0) is assigned a scale score of zero. The maximum raw score is assigned a scale score of 100. With respect to the 65 and 85 scale scores, the raw scores with scale scores of 65 or 85, after rounding, are assigned those values.

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Appendix A: Classical Item Analysis

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	901	MC	01	1	1,099	0.63	0.01		0.26	0.54	0.05	0.15			0.54	0.30
2012_Trig_FT	901	MC	02	1	1,099	0.63	0.00		0.80	0.06	0.07	0.07			0.80	0.33
2012_Trig_FT	901	MC	03	1	1,099	0.63	0.01		0.05	0.13	0.66	0.15			0.66	0.33
2012_Trig_FT	901	MC	04	1	1,099	0.63	0.01		0.39	0.45	0.08	0.07			0.45	0.31
2012_Trig_FT	901	MC	05	1	1,099	0.63	0.01		0.48	0.20	0.23	0.08			0.48	0.38
2012_Trig_FT	901	MC	06	1	1,099	0.63	0.01		0.20	0.58	0.12	0.10			0.58	0.44
2012_Trig_FT	901	MC	07	1	1,099	0.63	0.02		0.14	0.13	0.14	0.58			0.58	0.46
2012_Trig_FT	901	CR	08	2	1,099	0.63	0.06	0.35	0.16	0.43					1.03	0.63
2012_Trig_FT	901	CR	09	2	1,099	0.63	0.11	0.35	0.13	0.41					0.95	0.59
2012_Trig_FT	901	CR	10	4	1,099	0.63	0.09	0.60	0.06	0.16	0.02	0.08			0.74	0.55
2012_Trig_FT	901	CR	11	4	1,099	0.63	0.05	0.29	0.20	0.12	0.09	0.24			1.69	0.70
2012_Trig_FT	902	MC	01	1	1,095	0.64	0.01		0.57	0.08	0.10	0.23			0.57	0.40
2012_Trig_FT	902	MC	02	1	1,095	0.64	0.01		0.03	0.50	0.43	0.03			0.50	0.33
2012_Trig_FT	902	MC	03	1	1,095	0.64	0.02		0.43	0.20	0.21	0.14			0.43	0.45
2012_Trig_FT	902	MC	04	1	1,095	0.64	0.02		0.04	0.83	0.07	0.04			0.83	0.32
2012_Trig_FT	902	MC	05	1	1,095	0.64	0.01		0.51	0.38	0.07	0.04			0.51	0.32
2012_Trig_FT	902	MC	06	1	1,095	0.64	0.02		0.20	0.10	0.19	0.49			0.49	0.39
2012_Trig_FT	902	MC	07	1	1,095	0.64	0.02		0.15	0.12	0.55	0.17			0.55	0.33
2012_Trig_FT	902	CR	08	2	1,095	0.64	0.04	0.56	0.24	0.16					0.57	0.62
2012_Trig_FT	902	CR	09	6	1,095	0.64	0.12	0.56	0.02	0.05	0.02	0.07	0.03	0.12	1.35	0.82
2012_Trig_FT	902	CR	10	2	1,095	0.64	0.11	0.50	0.17	0.22					0.60	0.61
2012_Trig_FT	902	CR	11	2	1,095	0.64	0.14	0.31	0.16	0.39					0.94	0.58
2012_Trig_FT	903	MC	01	1	1,077	0.66	0.00		0.06	0.23	0.22	0.49			0.49	0.38
2012_Trig_FT	903	MC	02	1	1,077	0.66	0.01		0.49	0.10	0.30	0.10			0.30	0.39

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	903	MC	03	1	1,077	0.66	0.01		0.07	0.38	0.27	0.27			0.38	0.33
2012_Trig_FT	903	MC	04	1	1,077	0.66	0.00		0.29	0.13	0.52	0.05			0.52	0.45
2012_Trig_FT	903	MC	05	1	1,077	0.66	0.03		0.24	0.35	0.17	0.21			0.35	0.34
2012_Trig_FT	903	MC	06	1	1,077	0.66	0.01		0.85	0.06	0.04	0.04			0.85	0.36
2012_Trig_FT	903	MC	07	1	1,077	0.66	0.03		0.23	0.40	0.23	0.10			0.40	0.45
2012_Trig_FT	903	CR	08	2	1,077	0.66	0.07	0.70	0.14	0.09					0.32	0.55
2012_Trig_FT	903	CR	09	4	1,077	0.66	0.18	0.53	0.08	0.04	0.12	0.05			0.71	0.70
2012_Trig_FT	903	CR	10	4	1,077	0.66	0.17	0.40	0.12	0.12	0.09	0.11			1.06	0.66
2012_Trig_FT	903	CR	11	2	1,077	0.66	0.19	0.53	0.12	0.15					0.42	0.62
2012_Trig_FT	904	MC	01	1	1,091	0.68	0.02		0.07	0.27	0.10	0.54			0.54	0.38
2012_Trig_FT	904	MC	02	1	1,091	0.68	0.01		0.14	0.52	0.08	0.26			0.52	0.41
2012_Trig_FT	904	MC	03	1	1,091	0.68	0.05		0.14	0.34	0.26	0.21			0.21	0.29
2012_Trig_FT	904	MC	04	1	1,091	0.68	0.01		0.28	0.38	0.09	0.24			0.38	0.43
2012_Trig_FT	904	MC	05	1	1,091	0.68	0.02		0.20	0.25	0.47	0.06			0.47	0.38
2012_Trig_FT	904	MC	06	1	1,091	0.68	0.00		0.26	0.23	0.10	0.42			0.42	0.40
2012_Trig_FT	904	MC	07	1	1,091	0.68	0.05		0.32	0.29	0.25	0.10			0.32	0.30
2012_Trig_FT	904	CR	08	4	1,091	0.68	0.04	0.45	0.06	0.14	0.03	0.27			1.52	0.76
2012_Trig_FT	904	CR	09	2	1,091	0.68	0.12	0.57	0.14	0.17					0.48	0.59
2012_Trig_FT	904	CR	10	2	1,091	0.68	0.14	0.17	0.51	0.18					0.87	0.61
2012_Trig_FT	904	CR	11	4	1,091	0.68	0.09	0.29	0.04	0.25	0.14	0.19			1.73	0.73
2012_Trig_FT	905	MC	01	1	1,095	0.62	0.01		0.51	0.15	0.27	0.06			0.51	0.36
2012_Trig_FT	905	MC	02	1	1,095	0.62	0.02		0.17	0.21	0.30	0.30			0.30	0.45
2012_Trig_FT	905	MC	03	1	1,095	0.62	0.03		0.26	0.14	0.47	0.09			0.47	0.31
2012_Trig_FT	905	MC	04	1	1,095	0.62	0.01		0.19	0.25	0.08	0.46			0.46	0.47

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	905	MC	05	1	1,095	0.62	0.02		0.43	0.32	0.17	0.06			0.43	0.37
2012_Trig_FT	905	MC	06	1	1,095	0.62	0.04		0.08	0.21	0.55	0.12			0.55	0.37
2012_Trig_FT	905	MC	07	1	1,095	0.62	0.05		0.09	0.21	0.53	0.12			0.53	0.37
2012_Trig_FT	905	CR	08	2	1,095	0.62	0.27	0.44	0.19	0.10					0.38	0.53
2012_Trig_FT	905	CR	09	6	1,095	0.62	0.09	0.57	0.11	0.08	0.04	0.01	0.03	0.06	0.97	0.77
2012_Trig_FT	905	CR	10	2	1,095	0.62	0.20	0.65	0.03	0.12					0.26	0.52
2012_Trig_FT	905	CR	11	2	1,095	0.62	0.13	0.47	0.29	0.12					0.52	0.55
2012_Trig_FT	906	MC	01	1	1,104	0.64	0.02		0.18	0.39	0.21	0.21			0.39	0.36
2012_Trig_FT	906	MC	02	1	1,104	0.64	0.01		0.06	0.07	0.80	0.06			0.80	0.27
2012_Trig_FT	906	MC	03	1	1,104	0.64	0.01		0.04	0.21	0.64	0.09			0.64	0.42
2012_Trig_FT	906	MC	04	1	1,104	0.64	0.05		0.18	0.35	0.18	0.24			0.24	0.38
2012_Trig_FT	906	MC	05	1	1,104	0.64	0.01		0.09	0.38	0.24	0.29			0.38	0.32
2012_Trig_FT	906	MC	06	1	1,104	0.64	0.05		0.23	0.36	0.32	0.05			0.32	0.29
2012_Trig_FT	906	MC	07	1	1,104	0.64	0.01		0.03	0.08	0.14	0.74			0.74	0.43
2012_Trig_FT	906	CR	08	4	1,104	0.64	0.18	0.69	0.09	0.02	0.01	0.02			0.24	0.54
2012_Trig_FT	906	CR	09	4	1,104	0.64	0.07	0.44	0.13	0.05	0.12	0.19			1.34	0.81
2012_Trig_FT	906	CR	10	2	1,104	0.64	0.19	0.53	0.11	0.17					0.45	0.62
2012_Trig_FT	906	CR	11	2	1,104	0.64	0.29	0.49	0.15	0.06					0.28	0.54
2012_Trig_FT	907	MC	01	1	1,105	0.63	0.02		0.23	0.15	0.44	0.16			0.44	0.32
2012_Trig_FT	907	MC	02	1	1,105	0.63	0.01		0.10	0.37	0.18	0.34			0.34	0.42
2012_Trig_FT	907	MC	03	1	1,105	0.63	0.01		0.18	0.41	0.34	0.06			0.41	0.29
2012_Trig_FT	907	MC	04	1	1,105	0.63	0.01		0.19	0.47	0.16	0.17			0.47	0.35
2012_Trig_FT	907	MC	05	1	1,105	0.63	0.00		0.05	0.08	0.10	0.77			0.77	0.41
2012_Trig_FT	907	MC	06	1	1,105	0.63	0.01		0.07	0.65	0.20	0.07			0.65	0.43

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	907	MC	07	1	1,105	0.63	0.01		0.20	0.06	0.45	0.27			0.45	0.41
2012_Trig_FT	907	CR	08	2	1,105	0.63	0.02	0.60	0.18	0.20					0.57	0.57
2012_Trig_FT	907	CR	09	2	1,105	0.63	0.09	0.21	0.23	0.47					1.17	0.48
2012_Trig_FT	907	CR	10	6	1,105	0.63	0.12	0.31	0.17	0.10	0.06	0.11	0.05	0.09	1.74	0.82
2012_Trig_FT	907	CR	11	2	1,105	0.63	0.11	0.30	0.32	0.27					0.85	0.60
2012_Trig_FT	908	MC	01	1	1,107	0.64	0.02		0.17	0.08	0.13	0.60			0.60	0.28
2012_Trig_FT	908	MC	02	1	1,107	0.64	0.04		0.24	0.35	0.30	0.08			0.30	0.11
2012_Trig_FT	908	MC	03	1	1,107	0.64	0.01		0.04	0.04	0.29	0.62			0.62	0.30
2012_Trig_FT	908	MC	04	1	1,107	0.64	0.02		0.08	0.67	0.12	0.11			0.67	0.40
2012_Trig_FT	908	MC	05	1	1,107	0.64	0.02		0.16	0.60	0.16	0.06			0.60	0.43
2012_Trig_FT	908	MC	06	1	1,107	0.64	0.03		0.17	0.11	0.38	0.31			0.38	0.40
2012_Trig_FT	908	MC	07	1	1,107	0.64	0.02		0.24	0.39	0.13	0.21			0.39	0.41
2012_Trig_FT	908	CR	08	2	1,107	0.64	0.05	0.55	0.15	0.26					0.66	0.63
2012_Trig_FT	908	CR	09	2	1,107	0.64	0.30	0.58	0.04	0.08					0.20	0.47
2012_Trig_FT	908	CR	10	4	1,107	0.64	0.16	0.49	0.11	0.12	0.07	0.05			0.76	0.70
2012_Trig_FT	908	CR	11	4	1,107	0.64	0.17	0.46	0.09	0.10	0.09	0.09			0.91	0.73
2012_Trig_FT	909	MC	01	1	1,102	0.62	0.01		0.15	0.36	0.35	0.13			0.15	0.21
2012_Trig_FT	909	MC	02	1	1,102	0.62	0.03		0.06	0.56	0.20	0.15			0.56	0.44
2012_Trig_FT	909	MC	03	1	1,102	0.62	0.01		0.17	0.07	0.65	0.10			0.65	0.32
2012_Trig_FT	909	MC	04	1	1,102	0.62	0.01		0.12	0.77	0.03	0.07			0.77	0.35
2012_Trig_FT	909	MC	05	1	1,102	0.62	0.01		0.04	0.07	0.41	0.47			0.41	0.22
2012_Trig_FT	909	MC	06	1	1,102	0.62	0.04		0.12	0.44	0.28	0.13			0.44	0.44
2012_Trig_FT	909	MC	07	1	1,102	0.62	0.05		0.05	0.11	0.73	0.06			0.73	0.39
2012_Trig_FT	909	CR	08	2	1,102	0.62	0.25	0.51	0.16	0.09					0.33	0.47

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	909	CR	09	4	1,102	0.62	0.11	0.42	0.07	0.06	0.11	0.23			1.43	0.79
2012_Trig_FT	909	CR	10	2	1,102	0.62	0.10	0.48	0.17	0.25					0.66	0.60
2012_Trig_FT	909	CR	11	4	1,102	0.62	0.26	0.50	0.14	0.03	0.04	0.03			0.45	0.63
2012_Trig_FT	910	MC	01	1	1,089	0.62	0.02		0.30	0.24	0.38	0.06			0.38	0.39
2012_Trig_FT	910	MC	02	1	1,089	0.62	0.01		0.14	0.15	0.34	0.37			0.37	0.50
2012_Trig_FT	910	MC	03	1	1,089	0.62	0.04		0.26	0.27	0.32	0.11			0.32	0.21
2012_Trig_FT	910	MC	04	1	1,089	0.62	0.05		0.10	0.31	0.40	0.14			0.31	0.27
2012_Trig_FT	910	MC	05	1	1,089	0.62	0.02		0.12	0.59	0.12	0.15			0.59	0.47
2012_Trig_FT	910	MC	06	1	1,089	0.62	0.04		0.10	0.23	0.54	0.09			0.54	0.39
2012_Trig_FT	910	MC	07	1	1,089	0.62	0.04		0.29	0.09	0.13	0.45			0.29	0.39
2012_Trig_FT	910	CR	08	2	1,089	0.62	0.12	0.51	0.12	0.25					0.62	0.53
2012_Trig_FT	910	CR	09	2	1,089	0.62	0.21	0.66	0.08	0.05					0.18	0.51
2012_Trig_FT	910	CR	10	2	1,089	0.62	0.07	0.43	0.35	0.15					0.64	0.58
2012_Trig_FT	910	CR	11	6	1,089	0.62	0.15	0.35	0.10	0.11	0.07	0.10	0.07	0.05	1.55	0.81
2012_Trig_FT	911	MC	01	1	1,108	0.63	0.01		0.31	0.31	0.29	0.07			0.29	0.40
2012_Trig_FT	911	MC	02	1	1,108	0.63	0.02		0.28	0.55	0.11	0.03			0.55	0.34
2012_Trig_FT	911	MC	03	1	1,108	0.63	0.02		0.20	0.33	0.33	0.13			0.33	0.36
2012_Trig_FT	911	MC	04	1	1,108	0.63	0.00		0.90	0.02	0.02	0.05			0.90	0.23
2012_Trig_FT	911	MC	05	1	1,108	0.63	0.02		0.11	0.10	0.26	0.51			0.26	0.28
2012_Trig_FT	911	MC	06	1	1,108	0.63	0.03		0.06	0.13	0.47	0.31			0.31	0.39
2012_Trig_FT	911	MC	07	1	1,108	0.63	0.05		0.31	0.36	0.18	0.10			0.36	0.22
2012_Trig_FT	911	CR	08	6	1,108	0.63	0.06	0.60	0.18	0.01	0.06	0.01	0.06	0.01	0.77	0.76
2012_Trig_FT	911	CR	09	2	1,108	0.63	0.21	0.53	0.18	0.08					0.34	0.60
2012_Trig_FT	911	CR	10	2	1,108	0.63	0.11	0.50	0.19	0.21					0.60	0.64

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	911	CR	11	2	1,108	0.63	0.15	0.29	0.36	0.20					0.76	0.62
2012_Trig_FT	912	MC	01	1	1,104	0.58	0.01		0.18	0.66	0.08	0.08			0.66	0.32
2012_Trig_FT	912	MC	02	1	1,104	0.58	0.01		0.08	0.83	0.06	0.03			0.83	0.34
2012_Trig_FT	912	MC	03	1	1,104	0.58	0.02		0.10	0.12	0.44	0.33			0.33	0.16
2012_Trig_FT	912	MC	04	1	1,104	0.58	0.01		0.09	0.62	0.22	0.05			0.62	0.34
2012_Trig_FT	912	MC	05	1	1,104	0.58	0.01		0.29	0.03	0.14	0.53			0.53	0.44
2012_Trig_FT	912	MC	06	1	1,104	0.58	0.01		0.54	0.18	0.17	0.09			0.54	0.35
2012_Trig_FT	912	MC	07	1	1,104	0.58	0.04		0.08	0.57	0.24	0.06			0.57	0.33
2012_Trig_FT	912	CR	08	2	1,104	0.58	0.03	0.34	0.52	0.10					0.73	0.49
2012_Trig_FT	912	CR	09	2	1,104	0.58	0.15	0.62	0.17	0.06					0.29	0.50
2012_Trig_FT	912	CR	10	4	1,104	0.58	0.04	0.36	0.03	0.15	0.08	0.34			1.92	0.76
2012_Trig_FT	912	CR	11	4	1,104	0.58	0.18	0.56	0.12	0.04	0.05	0.05			0.56	0.67
2012_Trig_FT	913	MC	01	1	1,097	0.56	0.01		0.08	0.57	0.20	0.13			0.57	0.38
2012_Trig_FT	913	MC	02	1	1,097	0.56	0.03		0.48	0.18	0.23	0.08			0.48	0.39
2012_Trig_FT	913	MC	03	1	1,097	0.56	0.02		0.29	0.30	0.30	0.09			0.30	0.17
2012_Trig_FT	913	MC	04	1	1,097	0.56	0.03		0.14	0.18	0.38	0.27			0.38	0.31
2012_Trig_FT	913	MC	05	1	1,097	0.56	0.01		0.03	0.15	0.13	0.69			0.69	0.30
2012_Trig_FT	913	MC	06	1	1,097	0.56	0.04		0.48	0.15	0.16	0.17			0.17	0.18
2012_Trig_FT	913	MC	07	1	1,097	0.56	0.03		0.36	0.27	0.08	0.25			0.25	0.30
2012_Trig_FT	913	CR	08	4	1,097	0.56	0.09	0.36	0.04	0.06	0.03	0.41			1.92	0.78
2012_Trig_FT	913	CR	09	2	1,097	0.56	0.29	0.19	0.16	0.36					0.88	0.50
2012_Trig_FT	913	CR	10	4	1,097	0.56	0.19	0.47	0.10	0.08	0.04	0.12			0.84	0.69
2012_Trig_FT	913	CR	11	2	1,097	0.56	0.29	0.50	0.13	0.08					0.29	0.43
2012_Trig_FT	914	MC	01	1	1,086	0.57	0.01		0.53	0.10	0.15	0.21			0.53	0.41

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	914	MC	02	1	1,086	0.57	0.02		0.30	0.14	0.47	0.08			0.47	0.36
2012_Trig_FT	914	MC	03	1	1,086	0.57	0.01		0.28	0.11	0.26	0.34			0.34	0.26
2012_Trig_FT	914	MC	04	1	1,086	0.57	0.01		0.05	0.58	0.12	0.24			0.24	0.28
2012_Trig_FT	914	MC	05	1	1,086	0.57	0.02		0.27	0.09	0.18	0.44			0.18	0.28
2012_Trig_FT	914	MC	06	1	1,086	0.57	0.01		0.14	0.48	0.27	0.09			0.27	0.34
2012_Trig_FT	914	MC	07	1	1,086	0.57	0.01		0.13	0.65	0.15	0.06			0.65	0.41
2012_Trig_FT	914	CR	08	2	1,086	0.57	0.07	0.47	0.36	0.10					0.56	0.37
2012_Trig_FT	914	CR	09	4	1,086	0.57	0.10	0.54	0.10	0.05	0.08	0.13			0.97	0.67
2012_Trig_FT	914	CR	10	2	1,086	0.57	0.14	0.56	0.07	0.22					0.52	0.57
2012_Trig_FT	914	CR	11	4	1,086	0.57	0.21	0.45	0.09	0.08	0.08	0.10			0.88	0.67
2012_Trig_FT	915	MC	01	1	1,101	0.64	0.02		0.30	0.33	0.23	0.12			0.33	0.31
2012_Trig_FT	915	MC	02	1	1,101	0.64	0.01		0.07	0.59	0.25	0.07			0.59	0.25
2012_Trig_FT	915	MC	03	1	1,101	0.64	0.03		0.35	0.13	0.16	0.34			0.35	0.40
2012_Trig_FT	915	MC	04	1	1,101	0.64	0.04		0.12	0.22	0.19	0.43			0.43	0.44
2012_Trig_FT	915	MC	05	1	1,101	0.64	0.03		0.32	0.37	0.19	0.10			0.37	0.37
2012_Trig_FT	915	MC	06	1	1,101	0.64	0.02		0.13	0.06	0.71	0.08			0.71	0.42
2012_Trig_FT	915	MC	07	1	1,101	0.64	0.04		0.67	0.10	0.08	0.10			0.67	0.36
2012_Trig_FT	915	CR	08	2	1,101	0.64	0.11	0.45	0.21	0.23					0.67	0.63
2012_Trig_FT	915	CR	09	6	1,101	0.64	0.19	0.53	0.17	0.05	0.03	0.01	0.01	0.02	0.55	0.69
2012_Trig_FT	915	CR	10	2	1,101	0.64	0.16	0.56	0.11	0.17					0.46	0.52
2012_Trig_FT	915	CR	11	2	1,101	0.64	0.18	0.52	0.16	0.14					0.44	0.61
2012_Trig_FT	916	MC	01	1	1,082	0.66	0.02		0.20	0.19	0.10	0.49			0.49	0.40
2012_Trig_FT	916	MC	02	1	1,082	0.66	0.02		0.14	0.08	0.54	0.22			0.54	0.36
2012_Trig_FT	916	MC	03	1	1,082	0.66	0.02		0.60	0.25	0.10	0.04			0.60	0.40

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	916	MC	04	1	1,082	0.66	0.01		0.24	0.05	0.25	0.44			0.44	0.45
2012_Trig_FT	916	MC	05	1	1,082	0.66	0.01		0.76	0.11	0.06	0.06			0.76	0.35
2012_Trig_FT	916	MC	06	1	1,082	0.66	0.05		0.09	0.20	0.29	0.37			0.37	0.34
2012_Trig_FT	916	MC	07	1	1,082	0.66	0.01		0.30	0.37	0.25	0.06			0.37	0.35
2012_Trig_FT	916	CR	08	2	1,082	0.66	0.04	0.54	0.22	0.20					0.62	0.60
2012_Trig_FT	916	CR	09	4	1,082	0.66	0.07	0.54	0.18	0.07	0.02	0.12			0.87	0.70
2012_Trig_FT	916	CR	10	2	1,082	0.66	0.11	0.42	0.13	0.34					0.82	0.52
2012_Trig_FT	916	CR	11	4	1,082	0.66	0.13	0.46	0.10	0.24	0.02	0.06			0.84	0.69
2012_Trig_FT	917	MC	01	1	1,086	0.65	0.01		0.64	0.22	0.06	0.07			0.64	0.45
2012_Trig_FT	917	MC	02	1	1,086	0.65	0.02		0.18	0.35	0.33	0.13			0.35	0.41
2012_Trig_FT	917	MC	03	1	1,086	0.65	0.02		0.21	0.25	0.26	0.27			0.27	0.31
2012_Trig_FT	917	MC	04	1	1,086	0.65	0.02		0.12	0.28	0.13	0.45			0.45	0.45
2012_Trig_FT	917	MC	05	1	1,086	0.65	0.02		0.19	0.18	0.44	0.17			0.44	0.35
2012_Trig_FT	917	MC	06	1	1,086	0.65	0.02		0.64	0.20	0.09	0.05			0.64	0.45
2012_Trig_FT	917	MC	07	1	1,086	0.65	0.02		0.61	0.03	0.12	0.21			0.21	0.30
2012_Trig_FT	917	CR	08	4	1,086	0.65	0.08	0.56	0.07	0.13	0.04	0.12			0.93	0.72
2012_Trig_FT	917	CR	09	2	1,086	0.65	0.14	0.51	0.24	0.11					0.45	0.60
2012_Trig_FT	917	CR	10	4	1,086	0.65	0.18	0.67	0.08	0.03	0.02	0.02			0.29	0.59
2012_Trig_FT	917	CR	11	2	1,086	0.65	0.16	0.45	0.17	0.21					0.60	0.52
2012_Trig_FT	918	MC	01	1	1,092	0.60	0.00		0.15	0.05	0.71	0.09			0.71	0.39
2012_Trig_FT	918	MC	02	1	1,092	0.60	0.01		0.22	0.08	0.05	0.64			0.64	0.31
2012_Trig_FT	918	MC	03	1	1,092	0.60	0.03		0.20	0.42	0.25	0.10			0.42	0.42
2012_Trig_FT	918	MC	04	1	1,092	0.60	0.00		0.54	0.05	0.19	0.22			0.54	0.41
2012_Trig_FT	918	MC	05	1	1,092	0.60	0.02		0.23	0.26	0.37	0.12			0.37	0.41

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	918	MC	06	1	1,092	0.60	0.01		0.07	0.13	0.37	0.42			0.42	0.42
2012_Trig_FT	918	MC	07	1	1,092	0.60	0.04		0.23	0.21	0.27	0.24			0.24	0.28
2012_Trig_FT	918	CR	08	2	1,092	0.60	0.04	0.46	0.26	0.24					0.74	0.58
2012_Trig_FT	918	CR	09	2	1,092	0.60	0.05	0.49	0.33	0.13					0.59	0.41
2012_Trig_FT	918	CR	10	2	1,092	0.60	0.15	0.41	0.19	0.24					0.68	0.58
2012_Trig_FT	918	CR	11	6	1,092	0.60	0.24	0.59	0.06	0.01	0.03	0.02	0.02	0.02	0.49	0.66
2012_Trig_FT	919	MC	01	1	1,095	0.59	0.01		0.16	0.21	0.31	0.31			0.31	0.43
2012_Trig_FT	919	MC	02	1	1,095	0.59	0.01		0.33	0.43	0.17	0.06			0.43	0.34
2012_Trig_FT	919	MC	03	1	1,095	0.59	0.01		0.21	0.16	0.12	0.51			0.51	0.35
2012_Trig_FT	919	MC	04	1	1,095	0.59	0.01		0.22	0.33	0.10	0.33			0.33	0.42
2012_Trig_FT	919	MC	05	1	1,095	0.59	0.01		0.11	0.39	0.36	0.13			0.39	0.36
2012_Trig_FT	919	MC	06	1	1,095	0.59	0.02		0.39	0.26	0.18	0.16			0.16	0.27
2012_Trig_FT	919	MC	07	1	1,095	0.59	0.04		0.07	0.20	0.21	0.48			0.21	0.10
2012_Trig_FT	919	CR	08	4	1,095	0.59	0.09	0.44	0.11	0.06	0.09	0.20			1.33	0.75
2012_Trig_FT	919	CR	09	4	1,095	0.59	0.12	0.54	0.06	0.16	0.07	0.05			0.79	0.69
2012_Trig_FT	919	CR	10	2	1,095	0.59	0.29	0.51	0.19	0.01					0.20	0.44
2012_Trig_FT	919	CR	11	2	1,095	0.59	0.10	0.31	0.38	0.21					0.79	0.52
2012_Trig_FT	920	MC	01	1	1,114	0.60	0.02		0.18	0.13	0.58	0.10			0.58	0.38
2012_Trig_FT	920	MC	02	1	1,114	0.60	0.02		0.25	0.48	0.11	0.14			0.48	0.40
2012_Trig_FT	920	MC	03	1	1,114	0.60	0.02		0.20	0.39	0.21	0.18			0.18	0.25
2012_Trig_FT	920	MC	04	1	1,114	0.60	0.01		0.15	0.06	0.68	0.10			0.68	0.38
2012_Trig_FT	920	MC	05	1	1,114	0.60	0.02		0.17	0.44	0.16	0.21			0.44	0.35
2012_Trig_FT	920	MC	06	1	1,114	0.60	0.01		0.09	0.39	0.14	0.36			0.36	0.29
2012_Trig_FT	920	MC	07	1	1,114	0.60	0.04		0.10	0.17	0.54	0.15			0.54	0.32

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	920	CR	08	2	1,114	0.60	0.18	0.59	0.08	0.14					0.37	0.57
2012_Trig_FT	920	CR	09	6	1,114	0.60	0.06	0.31	0.11	0.20	0.17	0.09	0.03	0.02	1.68	0.72
2012_Trig_FT	920	CR	10	2	1,114	0.60	0.19	0.44	0.10	0.28					0.65	0.58
2012_Trig_FT	920	CR	11	2	1,114	0.60	0.13	0.48	0.17	0.22					0.61	0.57
2012_Trig_FT	921	MC	01	1	1,097	0.65	0.01		0.16	0.11	0.62	0.10			0.62	0.33
2012_Trig_FT	921	MC	02	1	1,097	0.65	0.01		0.39	0.31	0.14	0.15			0.39	0.28
2012_Trig_FT	921	MC	03	1	1,097	0.65	0.03		0.42	0.18	0.26	0.12			0.42	0.24
2012_Trig_FT	921	MC	04	1	1,097	0.65	0.02		0.17	0.10	0.61	0.11			0.61	0.39
2012_Trig_FT	921	MC	05	1	1,097	0.65	0.02		0.11	0.71	0.08	0.08			0.71	0.33
2012_Trig_FT	921	MC	06	1	1,097	0.65	0.02		0.13	0.09	0.40	0.36			0.36	0.39
2012_Trig_FT	921	MC	07	1	1,097	0.65	0.01		0.04	0.14	0.09	0.71			0.71	0.36
2012_Trig_FT	921	CR	08	2	1,097	0.65	0.18	0.38	0.14	0.30					0.74	0.66
2012_Trig_FT	921	CR	09	2	1,097	0.65	0.08	0.40	0.23	0.29					0.80	0.58
2012_Trig_FT	921	CR	10	4	1,097	0.65	0.18	0.37	0.07	0.08	0.07	0.23			1.34	0.71
2012_Trig_FT	921	CR	11	4	1,097	0.65	0.10	0.40	0.07	0.12	0.12	0.19			1.44	0.74
2012_Trig_FT	922	MC	01	1	1,098	0.64	0.01		0.18	0.54	0.18	0.08			0.54	0.47
2012_Trig_FT	922	MC	02	1	1,098	0.64	0.00		0.10	0.59	0.09	0.23			0.59	0.26
2012_Trig_FT	922	MC	03	1	1,098	0.64	0.01		0.42	0.20	0.19	0.18			0.42	0.51
2012_Trig_FT	922	MC	04	1	1,098	0.64	0.01		0.07	0.47	0.11	0.34			0.34	0.27
2012_Trig_FT	922	MC	05	1	1,098	0.64	0.01		0.47	0.08	0.37	0.07			0.47	0.40
2012_Trig_FT	922	MC	06	1	1,098	0.64	0.00		0.85	0.06	0.04	0.05			0.85	0.39
2012_Trig_FT	922	MC	07	1	1,098	0.64	0.01		0.15	0.25	0.48	0.11			0.48	0.41
2012_Trig_FT	922	CR	08	4	1,098	0.64	0.18	0.20	0.08	0.24	0.14	0.15			1.60	0.68
2012_Trig_FT	922	CR	09	2	1,098	0.64	0.15	0.62	0.15	0.09					0.32	0.54

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	922	CR	10	2	1,098	0.64	0.06	0.56	0.22	0.16					0.54	0.63
2012_Trig_FT	922	CR	11	2	1,098	0.64	0.17	0.39	0.29	0.15					0.58	0.61
2012_Trig_FT	923	MC	01	1	1,084	0.64	0.00		0.07	0.19	0.17	0.56			0.56	0.42
2012_Trig_FT	923	MC	02	1	1,084	0.64	0.01		0.52	0.19	0.17	0.11			0.52	0.43
2012_Trig_FT	923	MC	03	1	1,084	0.64	0.01		0.04	0.20	0.52	0.23			0.52	0.41
2012_Trig_FT	923	MC	04	1	1,084	0.64	0.01		0.18	0.44	0.13	0.24			0.44	0.39
2012_Trig_FT	923	MC	05	1	1,084	0.64	0.01		0.63	0.19	0.08	0.09			0.63	0.39
2012_Trig_FT	923	MC	06	1	1,084	0.64	0.01		0.20	0.16	0.48	0.15			0.48	0.28
2012_Trig_FT	923	MC	07	1	1,084	0.64	0.02		0.36	0.25	0.27	0.10			0.27	0.28
2012_Trig_FT	923	CR	08	4	1,084	0.64	0.11	0.45	0.14	0.08	0.07	0.15			1.10	0.69
2012_Trig_FT	923	CR	09	4	1,084	0.64	0.14	0.48	0.06	0.08	0.06	0.18			1.12	0.67
2012_Trig_FT	923	CR	10	2	1,084	0.64	0.11	0.47	0.21	0.21					0.63	0.55
2012_Trig_FT	923	CR	11	2	1,084	0.64	0.22	0.48	0.14	0.16					0.47	0.60
2012_Trig_FT	924	MC	01	1	1,105	0.60	0.03		0.15	0.19	0.43	0.20			0.43	0.35
2012_Trig_FT	924	MC	02	1	1,105	0.60	0.04		0.16	0.25	0.20	0.36			0.16	0.30
2012_Trig_FT	924	MC	03	1	1,105	0.60	0.02		0.23	0.07	0.52	0.17			0.52	0.33
2012_Trig_FT	924	MC	04	1	1,105	0.60	0.03		0.23	0.25	0.21	0.29			0.21	0.27
2012_Trig_FT	924	MC	05	1	1,105	0.60	0.03		0.13	0.21	0.22	0.41			0.41	0.38
2012_Trig_FT	924	MC	06	1	1,105	0.60	0.01		0.23	0.35	0.09	0.31			0.31	0.38
2012_Trig_FT	924	MC	07	1	1,105	0.60	0.08		0.20	0.41	0.23	0.08			0.41	0.20
2012_Trig_FT	924	CR	08	2	1,105	0.60	0.19	0.60	0.11	0.10					0.31	0.52
2012_Trig_FT	924	CR	09	4	1,105	0.60	0.08	0.39	0.26	0.09	0.07	0.11			1.10	0.71
2012_Trig_FT	924	CR	10	4	1,105	0.60	0.16	0.30	0.20	0.12	0.05	0.17			1.26	0.72
2012_Trig_FT	924	CR	11	2	1,105	0.60	0.25	0.48	0.12	0.15					0.43	0.55

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	925	MC	01	1	1,104	0.62	0.00		0.07	0.48	0.13	0.31			0.48	0.35
2012_Trig_FT	925	MC	02	1	1,104	0.62	0.01		0.04	0.09	0.77	0.09			0.77	0.35
2012_Trig_FT	925	MC	03	1	1,104	0.62	0.02		0.39	0.17	0.30	0.12			0.39	0.25
2012_Trig_FT	925	MC	04	1	1,104	0.62	0.02		0.24	0.20	0.21	0.33			0.33	0.33
2012_Trig_FT	925	MC	05	1	1,104	0.62	0.00		0.83	0.10	0.05	0.02			0.83	0.36
2012_Trig_FT	925	MC	06	1	1,104	0.62	0.03		0.37	0.25	0.10	0.25			0.37	0.31
2012_Trig_FT	925	MC	07	1	1,104	0.62	0.02		0.02	0.69	0.05	0.22			0.69	0.31
2012_Trig_FT	925	CR	08	2	1,104	0.62	0.11	0.52	0.10	0.27					0.64	0.55
2012_Trig_FT	925	CR	09	4	1,104	0.62	0.16	0.49	0.06	0.09	0.07	0.14			0.98	0.73
2012_Trig_FT	925	CR	10	2	1,104	0.62	0.17	0.58	0.17	0.08					0.34	0.56
2012_Trig_FT	925	CR	11	4	1,104	0.62	0.09	0.56	0.05	0.06	0.04	0.20			1.09	0.75
2012_Trig_FT	926	MC	01	1	1,085	0.64	0.03		0.20	0.19	0.49	0.10			0.49	0.37
2012_Trig_FT	926	MC	02	1	1,085	0.64	0.02		0.36	0.15	0.13	0.34			0.36	0.42
2012_Trig_FT	926	MC	03	1	1,085	0.64	0.03		0.07	0.22	0.45	0.22			0.45	0.34
2012_Trig_FT	926	MC	04	1	1,085	0.64	0.00		0.05	0.09	0.81	0.05			0.81	0.33
2012_Trig_FT	926	MC	05	1	1,085	0.64	0.02		0.15	0.11	0.62	0.10			0.62	0.37
2012_Trig_FT	926	MC	06	1	1,085	0.64	0.01		0.31	0.45	0.10	0.13			0.13	0.11
2012_Trig_FT	926	MC	07	1	1,085	0.64	0.02		0.39	0.09	0.27	0.23			0.39	0.41
2012_Trig_FT	926	CR	08	4	1,085	0.64	0.17	0.51	0.19	0.05	0.04	0.05			0.61	0.66
2012_Trig_FT	926	CR	09	2	1,085	0.64	0.18	0.44	0.27	0.11					0.50	0.59
2012_Trig_FT	926	CR	10	2	1,085	0.64	0.06	0.24	0.18	0.52					1.22	0.62
2012_Trig_FT	926	CR	11	4	1,085	0.64	0.21	0.52	0.07	0.06	0.02	0.12			0.74	0.69
2012_Trig_FT	927	MC	01	1	1,093	0.62	0.01		0.06	0.12	0.51	0.30			0.51	0.31
2012_Trig_FT	927	MC	02	1	1,093	0.62	0.01		0.16	0.42	0.21	0.20			0.42	0.38

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	927	MC	03	1	1,093	0.62	0.03		0.07	0.24	0.14	0.52			0.52	0.42
2012_Trig_FT	927	MC	04	1	1,093	0.62	0.05		0.16	0.42	0.17	0.20			0.42	0.37
2012_Trig_FT	927	MC	05	1	1,093	0.62	0.01		0.70	0.14	0.07	0.07			0.70	0.42
2012_Trig_FT	927	MC	06	1	1,093	0.62	0.02		0.05	0.08	0.09	0.75			0.75	0.33
2012_Trig_FT	927	MC	07	1	1,093	0.62	0.03		0.16	0.64	0.11	0.05			0.64	0.31
2012_Trig_FT	927	CR	08	2	1,093	0.62	0.07	0.52	0.15	0.26					0.68	0.57
2012_Trig_FT	927	CR	09	2	1,093	0.62	0.21	0.62	0.09	0.08					0.26	0.53
2012_Trig_FT	927	CR	10	6	1,093	0.62	0.07	0.11	0.48	0.08	0.04	0.04	0.10	0.08	1.91	0.80
2012_Trig_FT	927	CR	11	2	1,093	0.62	0.24	0.44	0.13	0.19					0.51	0.54
2012_Trig_FT	928	MC	01	1	1,076	0.61	0.01		0.15	0.28	0.31	0.25			0.25	0.36
2012_Trig_FT	928	MC	02	1	1,076	0.61	0.01		0.09	0.68	0.06	0.17			0.68	0.40
2012_Trig_FT	928	MC	03	1	1,076	0.61	0.04		0.30	0.27	0.27	0.11			0.27	0.25
2012_Trig_FT	928	MC	04	1	1,076	0.61	0.01		0.04	0.14	0.73	0.09			0.73	0.38
2012_Trig_FT	928	MC	05	1	1,076	0.61	0.02		0.19	0.50	0.19	0.10			0.50	0.38
2012_Trig_FT	928	MC	06	1	1,076	0.61	0.01		0.11	0.62	0.09	0.16			0.62	0.42
2012_Trig_FT	928	MC	07	1	1,076	0.61	0.04		0.11	0.15	0.22	0.48			0.48	0.42
2012_Trig_FT	928	CR	08	2	1,076	0.61	0.12	0.50	0.08	0.30					0.68	0.51
2012_Trig_FT	928	CR	09	4	1,076	0.61	0.13	0.77	0.05	0.01	0.01	0.02			0.20	0.57
2012_Trig_FT	928	CR	10	4	1,076	0.61	0.18	0.50	0.19	0.05	0.04	0.05			0.58	0.69
2012_Trig_FT	928	CR	11	2	1,076	0.61	0.25	0.46	0.16	0.13					0.42	0.52
2012_Trig_FT	929	MC	01	1	1,074	0.58	0.01		0.47	0.06	0.38	0.08			0.47	0.35
2012_Trig_FT	929	MC	02	1	1,074	0.58	0.02		0.34	0.22	0.32	0.10			0.22	0.13
2012_Trig_FT	929	MC	03	1	1,074	0.58	0.01		0.09	0.21	0.19	0.50			0.50	0.44
2012_Trig_FT	929	MC	04	1	1,074	0.58	0.01		0.13	0.21	0.49	0.16			0.49	0.38

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	929	MC	05	1	1,074	0.58	0.00		0.54	0.08	0.18	0.20			0.20	0.25
2012_Trig_FT	929	MC	06	1	1,074	0.58	0.01		0.05	0.08	0.77	0.08			0.77	0.26
2012_Trig_FT	929	MC	07	1	1,074	0.58	0.03		0.22	0.25	0.27	0.22			0.27	0.23
2012_Trig_FT	929	CR	08	4	1,074	0.58	0.06	0.51	0.06	0.10	0.02	0.24			1.29	0.72
2012_Trig_FT	929	CR	09	2	1,074	0.58	0.17	0.32	0.08	0.42					0.93	0.57
2012_Trig_FT	929	CR	10	4	1,074	0.58	0.13	0.55	0.09	0.07	0.09	0.07			0.78	0.68
2012_Trig_FT	929	CR	11	2	1,074	0.58	0.33	0.45	0.13	0.09					0.32	0.54
2012_Trig_FT	930	MC	01	1	1,074	0.65	0.00		0.26	0.36	0.36	0.01			0.36	0.40
2012_Trig_FT	930	MC	02	1	1,074	0.65	0.03		0.15	0.26	0.19	0.36			0.26	0.31
2012_Trig_FT	930	MC	03	1	1,074	0.65	0.01		0.08	0.14	0.11	0.67			0.67	0.47
2012_Trig_FT	930	MC	04	1	1,074	0.65	0.01		0.14	0.18	0.48	0.20			0.48	0.26
2012_Trig_FT	930	MC	05	1	1,074	0.65	0.01		0.47	0.15	0.08	0.28			0.47	0.37
2012_Trig_FT	930	MC	06	1	1,074	0.65	0.01		0.14	0.07	0.68	0.10			0.68	0.34
2012_Trig_FT	930	MC	07	1	1,074	0.65	0.04		0.48	0.12	0.18	0.18			0.18	0.32
2012_Trig_FT	930	CR	08	4	1,074	0.65	0.06	0.48	0.19	0.05	0.06	0.16			1.13	0.73
2012_Trig_FT	930	CR	09	2	1,074	0.65	0.15	0.55	0.18	0.11					0.41	0.63
2012_Trig_FT	930	CR	10	2	1,074	0.65	0.20	0.25	0.13	0.42					0.97	0.52
2012_Trig_FT	930	CR	11	4	1,074	0.65	0.09	0.49	0.16	0.11	0.05	0.10			0.95	0.70
2012_Trig_FT	931	MC	01	1	1,065	0.58	0.01		0.64	0.24	0.09	0.03			0.64	0.31
2012_Trig_FT	931	MC	02	1	1,065	0.58	0.01		0.23	0.56	0.12	0.08			0.56	0.39
2012_Trig_FT	931	MC	03	1	1,065	0.58	0.02		0.38	0.19	0.28	0.13			0.38	0.35
2012_Trig_FT	931	MC	04	1	1,065	0.58	0.00		0.09	0.04	0.48	0.37			0.37	0.44
2012_Trig_FT	931	MC	05	1	1,065	0.58	0.03		0.22	0.26	0.22	0.28			0.28	0.39
2012_Trig_FT	931	MC	06	1	1,065	0.58	0.01		0.24	0.22	0.15	0.38			0.38	0.40

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	M6	MEAN	Point-Biserial
2012_Trig_FT	931	MC	07	1	1,065	0.58	0.02		0.46	0.16	0.19	0.16			0.46	0.45
2012_Trig_FT	931	CR	08	2	1,065	0.58	0.12	0.73	0.09	0.06					0.21	0.36
2012_Trig_FT	931	CR	09	6	1,065	0.58	0.23	0.54	0.06	0.04	0.04	0.02	0.04	0.02	0.69	0.74
2012_Trig_FT	931	CR	10	2	1,065	0.58	0.20	0.56	0.11	0.12					0.36	0.45
2012_Trig_FT	931	CR	11	2	1,065	0.58	0.13	0.47	0.26	0.14					0.53	0.51
2012_Trig_FT	932	MC	01	1	1,069	0.56	0.00		0.03	0.73	0.19	0.05			0.73	0.21
2012_Trig_FT	932	MC	02	1	1,069	0.56	0.00		0.38	0.18	0.23	0.20			0.38	0.46
2012_Trig_FT	932	MC	03	1	1,069	0.56	0.01		0.34	0.17	0.19	0.28			0.34	0.42
2012_Trig_FT	932	MC	04	1	1,069	0.56	0.02		0.10	0.14	0.62	0.13			0.62	0.39
2012_Trig_FT	932	MC	05	1	1,069	0.56	0.02		0.06	0.52	0.16	0.23			0.52	0.36
2012_Trig_FT	932	MC	06	1	1,069	0.56	0.00		0.65	0.12	0.18	0.05			0.65	0.32
2012_Trig_FT	932	MC	07	1	1,069	0.56	0.01		0.38	0.10	0.21	0.30			0.30	0.32
2012_Trig_FT	932	CR	08	2	1,069	0.56	0.13	0.55	0.16	0.15					0.47	0.57
2012_Trig_FT	932	CR	09	4	1,069	0.56	0.09	0.33	0.04	0.10	0.06	0.38			1.94	0.65
2012_Trig_FT	932	CR	10	4	1,069	0.56	0.13	0.40	0.16	0.06	0.04	0.22			1.27	0.70
2012_Trig_FT	932	CR	11	2	1,069	0.56	0.18	0.66	0.12	0.04					0.20	0.45

Appendix B: Partial-Credit Model Item Analysis

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	901	MC	01	1	1,099	−0.2925							1.08
2012_Trig_FT	901	MC	02	1	1,099	−1.6475							1.03
2012_Trig_FT	901	MC	03	1	1,099	−0.8667							1.05
2012_Trig_FT	901	MC	04	1	1,099	0.1346							1.07
2012_Trig_FT	901	MC	05	1	1,099	−0.0214							1.00
2012_Trig_FT	901	MC	06	1	1,099	−0.4635							0.95
2012_Trig_FT	901	MC	07	1	1,099	−0.4509							0.92
2012_Trig_FT	901	CR	08	2	1,099	−0.1354	0.7015	−0.7015					0.88
2012_Trig_FT	901	CR	09	2	1,099	−0.0061	0.9441	−0.9441					0.96
2012_Trig_FT	901	CR	10	4	1,099	0.9423	1.3500	−1.7210	1.5271	−1.1561			1.16
2012_Trig_FT	901	CR	11	4	1,099	0.1172	−0.1009	0.2224	0.4067	−0.5282			0.98
2012_Trig_FT	902	MC	01	1	1,095	−0.4254							1.01
2012_Trig_FT	902	MC	02	1	1,095	−0.1178							1.12
2012_Trig_FT	902	MC	03	1	1,095	0.2371							0.98
2012_Trig_FT	902	MC	04	1	1,095	−1.9457							0.95
2012_Trig_FT	902	MC	05	1	1,095	−0.1437							1.13
2012_Trig_FT	902	MC	06	1	1,095	−0.0662							1.03
2012_Trig_FT	902	MC	07	1	1,095	−0.3164							1.09
2012_Trig_FT	902	CR	08	2	1,095	0.8369	−0.1085	0.1085					0.92
2012_Trig_FT	902	CR	09	6	1,095	0.7572	2.4023	−1.5092	0.5611	−1.5182	0.8415	−0.7775	0.74
2012_Trig_FT	902	CR	10	2	1,095	0.6761	0.3820	−0.3820					0.95
2012_Trig_FT	902	CR	11	2	1,095	0.0181	0.6297	−0.6297					1.00
2012_Trig_FT	903	MC	01	1	1,077	−0.1047							1.06
2012_Trig_FT	903	MC	02	1	1,077	0.8212							1.01
2012_Trig_FT	903	MC	03	1	1,077	0.4434							1.09

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	903	MC	04	1	1,077	−0.2679							0.96
2012_Trig_FT	903	MC	05	1	1,077	0.5830							1.08
2012_Trig_FT	903	MC	06	1	1,077	−2.2407							0.95
2012_Trig_FT	903	MC	07	1	1,077	0.3025							0.97
2012_Trig_FT	903	CR	08	2	1,077	1.3806	0.2486	−0.2486					0.92
2012_Trig_FT	903	CR	09	4	1,077	1.1422	0.8705	−0.1408	−1.5962	0.8665			0.93
2012_Trig_FT	903	CR	10	4	1,077	0.7095	0.4448	−0.5217	0.0642	0.0127			1.16
2012_Trig_FT	903	CR	11	2	1,077	1.0187	0.6484	−0.6484					0.89
2012_Trig_FT	904	MC	01	1	1,091	−0.3775							1.05
2012_Trig_FT	904	MC	02	1	1,091	−0.2778							1.01
2012_Trig_FT	904	MC	03	1	1,091	1.3614							1.09
2012_Trig_FT	904	MC	04	1	1,091	0.4062							0.99
2012_Trig_FT	904	MC	05	1	1,091	−0.0367							1.04
2012_Trig_FT	904	MC	06	1	1,091	0.2326							1.02
2012_Trig_FT	904	MC	07	1	1,091	0.6903							1.10
2012_Trig_FT	904	CR	08	4	1,091	0.1970	1.3753	−1.1570	1.6576	−1.8759			0.93
2012_Trig_FT	904	CR	09	2	1,091	0.8805	0.5150	−0.5150					0.95
2012_Trig_FT	904	CR	10	2	1,091	0.1877	−1.1802	1.1802					0.89
2012_Trig_FT	904	CR	11	4	1,091	0.1405	1.4528	−2.2425	0.5621	0.2276			0.97
2012_Trig_FT	905	MC	01	1	1,095	−0.1878							1.05
2012_Trig_FT	905	MC	02	1	1,095	0.8245							0.96
2012_Trig_FT	905	MC	03	1	1,095	−0.0249							1.12
2012_Trig_FT	905	MC	04	1	1,095	0.0180							0.94
2012_Trig_FT	905	MC	05	1	1,095	0.1691							1.03
2012_Trig_FT	905	MC	06	1	1,095	−0.3731							1.03

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	905	MC	07	1	1,095	−0.3082							1.02
2012_Trig_FT	905	CR	08	2	1,095	1.2465	−0.0296	0.0296					0.99
2012_Trig_FT	905	CR	09	6	1,095	1.0203	0.4253	−0.4521	0.1216	0.9540	−0.8097	−0.2391	0.92
2012_Trig_FT	905	CR	10	2	1,095	1.3193	2.1703	−2.1703					1.01
2012_Trig_FT	905	CR	11	2	1,095	0.9654	−0.4491	0.4491					0.97
2012_Trig_FT	906	MC	01	1	1,104	0.4207							1.08
2012_Trig_FT	906	MC	02	1	1,104	−1.7910							1.01
2012_Trig_FT	906	MC	03	1	1,104	−0.7984							1.00
2012_Trig_FT	906	MC	04	1	1,104	1.2388							1.03
2012_Trig_FT	906	MC	05	1	1,104	0.4616							1.12
2012_Trig_FT	906	MC	06	1	1,104	0.7865							1.14
2012_Trig_FT	906	MC	07	1	1,104	−1.3882							0.93
2012_Trig_FT	906	CR	08	4	1,104	1.9831	0.3844	0.2238	0.0264	−0.6347			0.88
2012_Trig_FT	906	CR	09	4	1,104	0.4557	0.3702	0.4687	−0.7663	−0.0726			0.72
2012_Trig_FT	906	CR	10	2	1,104	0.9987	0.7511	−0.7511					0.92
2012_Trig_FT	906	CR	11	2	1,104	1.6906	−0.0095	0.0095					0.93
2012_Trig_FT	907	MC	01	1	1,105	0.1683							1.09
2012_Trig_FT	907	MC	02	1	1,105	0.6280							0.99
2012_Trig_FT	907	MC	03	1	1,105	0.3179							1.12
2012_Trig_FT	907	MC	04	1	1,105	0.0331							1.07
2012_Trig_FT	907	MC	05	1	1,105	−1.4927							0.94
2012_Trig_FT	907	MC	06	1	1,105	−0.8308							0.98
2012_Trig_FT	907	MC	07	1	1,105	0.0963							1.00
2012_Trig_FT	907	CR	08	2	1,105	0.7232	0.3410	−0.3410					0.98
2012_Trig_FT	907	CR	09	2	1,105	−0.4277	0.1603	−0.1603					1.13

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	907	CR	10	6	1,105	0.5800	−0.1687	−0.1439	0.2087	−0.8063	0.9755	−0.0652	0.74
2012_Trig_FT	907	CR	11	2	1,105	0.1937	−0.2825	0.2825					0.93
2012_Trig_FT	908	MC	01	1	1,107	−0.5824							1.09
2012_Trig_FT	908	MC	02	1	1,107	0.8506							1.24
2012_Trig_FT	908	MC	03	1	1,107	−0.7139							1.07
2012_Trig_FT	908	MC	04	1	1,107	−0.9608							0.98
2012_Trig_FT	908	MC	05	1	1,107	−0.5868							0.94
2012_Trig_FT	908	MC	06	1	1,107	0.4253							1.00
2012_Trig_FT	908	MC	07	1	1,107	0.3517							0.99
2012_Trig_FT	908	CR	08	2	1,107	0.4781	0.6509	−0.6509					0.89
2012_Trig_FT	908	CR	09	2	1,107	1.5593	1.4855	−1.4855					0.96
2012_Trig_FT	908	CR	10	4	1,107	1.0969	0.4204	−0.9907	0.1254	0.4450			0.89
2012_Trig_FT	908	CR	11	4	1,107	0.8368	0.8455	−0.7797	−0.2135	0.1476			0.89
2012_Trig_FT	909	MC	01	1	1,102	1.8574							1.09
2012_Trig_FT	909	MC	02	1	1,102	−0.4116							0.97
2012_Trig_FT	909	MC	03	1	1,102	−0.8638							1.08
2012_Trig_FT	909	MC	04	1	1,102	−1.5503							1.01
2012_Trig_FT	909	MC	05	1	1,102	0.3100							1.20
2012_Trig_FT	909	MC	06	1	1,102	0.1505							0.99
2012_Trig_FT	909	MC	07	1	1,102	−1.2837							0.97
2012_Trig_FT	909	CR	08	2	1,102	1.4085	0.1289	−0.1289					1.04
2012_Trig_FT	909	CR	09	4	1,102	0.3375	1.1769	−0.1573	−0.6771	−0.3424			0.77
2012_Trig_FT	909	CR	10	2	1,102	0.5153	0.4876	−0.4876					0.96
2012_Trig_FT	909	CR	11	4	1,102	1.4886	0.1260	0.4227	−0.7455	0.1967			0.88

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	910	MC	01	1	1,089	0.3807							1.03
2012_Trig_FT	910	MC	02	1	1,089	0.4396							0.92
2012_Trig_FT	910	MC	03	1	1,089	0.6878							1.18
2012_Trig_FT	910	MC	04	1	1,089	0.7266							1.13
2012_Trig_FT	910	MC	05	1	1,089	−0.6214							0.95
2012_Trig_FT	910	MC	06	1	1,089	−0.3633							1.03
2012_Trig_FT	910	MC	07	1	1,089	0.8306							1.01
2012_Trig_FT	910	CR	08	2	1,089	0.5086	0.8612	−0.8612					1.09
2012_Trig_FT	910	CR	09	2	1,089	1.7960	0.5610	−0.5610					0.86
2012_Trig_FT	910	CR	10	2	1,089	0.6568	−0.6406	0.6406					0.93
2012_Trig_FT	910	CR	11	6	1,089	0.7338	0.2722	−0.8453	−0.0344	−0.6147	0.4885	0.7337	0.85
2012_Trig_FT	911	MC	01	1	1,108	0.9151							1.00
2012_Trig_FT	911	MC	02	1	1,108	−0.3821							1.06
2012_Trig_FT	911	MC	03	1	1,108	0.6919							1.05
2012_Trig_FT	911	MC	04	1	1,108	−2.6642							1.00
2012_Trig_FT	911	MC	05	1	1,108	1.0805							1.12
2012_Trig_FT	911	MC	06	1	1,108	0.8260							1.01
2012_Trig_FT	911	MC	07	1	1,108	0.5305							1.19
2012_Trig_FT	911	CR	08	6	1,108	1.5755	−0.5359	1.2726	−2.2587	1.4529	−2.2014	2.2705	0.86
2012_Trig_FT	911	CR	09	2	1,108	1.4361	−0.0694	0.0694					0.88
2012_Trig_FT	911	CR	10	2	1,108	0.6669	0.2799	−0.2799					0.88
2012_Trig_FT	911	CR	11	2	1,108	0.4332	−0.5587	0.5587					0.87
2012_Trig_FT	912	MC	01	1	1,104	−0.8897							1.06
2012_Trig_FT	912	MC	02	1	1,104	−1.9403							0.98

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	912	MC	03	1	1,104	0.6899							1.21
2012_Trig_FT	912	MC	04	1	1,104	−0.7015							1.06
2012_Trig_FT	912	MC	05	1	1,104	−0.2526							0.96
2012_Trig_FT	912	MC	06	1	1,104	−0.3190							1.04
2012_Trig_FT	912	MC	07	1	1,104	−0.4612							1.05
2012_Trig_FT	912	CR	08	2	1,104	0.6816	−1.3555	1.3555					0.98
2012_Trig_FT	912	CR	09	2	1,104	1.5785	−0.1633	0.1633					0.96
2012_Trig_FT	912	CR	10	4	1,104	−0.0596	2.0112	−1.8085	0.7872	−0.9898			0.81
2012_Trig_FT	912	CR	11	4	1,104	1.2022	0.4281	0.2764	−0.6992	−0.0053			0.77
2012_Trig_FT	913	MC	01	1	1,097	−0.4700							0.99
2012_Trig_FT	913	MC	02	1	1,097	−0.0494							0.97
2012_Trig_FT	913	MC	03	1	1,097	0.7858							1.14
2012_Trig_FT	913	MC	04	1	1,097	0.3842							1.04
2012_Trig_FT	913	MC	05	1	1,097	−1.0284							1.04
2012_Trig_FT	913	MC	06	1	1,097	1.5839							1.08
2012_Trig_FT	913	MC	07	1	1,097	1.0438							1.02
2012_Trig_FT	913	CR	08	4	1,097	−0.0722	2.0601	−0.7281	0.7337	−2.0657			0.70
2012_Trig_FT	913	CR	09	2	1,097	0.0558	0.7279	−0.7279					1.05
2012_Trig_FT	913	CR	10	4	1,097	0.7036	0.9304	−0.3241	0.3251	−0.9314			0.85
2012_Trig_FT	913	CR	11	2	1,097	1.3768	0.3275	−0.3275					0.99
2012_Trig_FT	914	MC	01	1	1,086	−0.2961							0.97
2012_Trig_FT	914	MC	02	1	1,086	−0.0293							1.02
2012_Trig_FT	914	MC	03	1	1,086	0.5658							1.08
2012_Trig_FT	914	MC	04	1	1,086	1.1317							1.04
2012_Trig_FT	914	MC	05	1	1,086	1.4979							1.02

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	914	MC	06	1	1,086	0.9418							1.01
2012_Trig_FT	914	MC	07	1	1,086	−0.8600							0.95
2012_Trig_FT	914	CR	08	2	1,086	0.9079	−0.7518	0.7518					1.10
2012_Trig_FT	914	CR	09	4	1,086	0.6096	0.8859	0.2481	−0.6890	−0.4450			0.98
2012_Trig_FT	914	CR	10	2	1,086	0.6511	1.4149	−1.4149					0.92
2012_Trig_FT	914	CR	11	4	1,086	0.7276	1.0178	−0.5716	−0.2738	−0.1725			0.95
2012_Trig_FT	915	MC	01	1	1,101	0.6673							1.10
2012_Trig_FT	915	MC	02	1	1,101	−0.5943							1.16
2012_Trig_FT	915	MC	03	1	1,101	0.5788							1.01
2012_Trig_FT	915	MC	04	1	1,101	0.2045							0.98
2012_Trig_FT	915	MC	05	1	1,101	0.5011							1.05
2012_Trig_FT	915	MC	06	1	1,101	−1.2297							0.94
2012_Trig_FT	915	MC	07	1	1,101	−0.9925							1.01
2012_Trig_FT	915	CR	08	2	1,101	0.5146	0.1818	−0.1818					0.90
2012_Trig_FT	915	CR	09	6	1,101	1.5774	−0.3070	0.0260	0.0310	0.6770	0.2705	−0.6975	0.77
2012_Trig_FT	915	CR	10	2	1,101	0.9231	0.8284	−0.8284					1.09
2012_Trig_FT	915	CR	11	2	1,101	1.0339	0.3291	−0.3291					0.89
2012_Trig_FT	916	MC	01	1	1,082	−0.0745							1.01
2012_Trig_FT	916	MC	02	1	1,082	−0.3190							1.06
2012_Trig_FT	916	MC	03	1	1,082	−0.5864							0.99
2012_Trig_FT	916	MC	04	1	1,082	0.1485							0.96
2012_Trig_FT	916	MC	05	1	1,082	−1.4546							1.00
2012_Trig_FT	916	MC	06	1	1,082	0.4649							1.05
2012_Trig_FT	916	MC	07	1	1,082	0.4874							1.06
2012_Trig_FT	916	CR	08	2	1,082	0.6409	0.0940	−0.0940					0.91

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	916	CR	09	4	1,082	0.7822	0.1613	0.4134	0.9448	−1.5195			0.93
2012_Trig_FT	916	CR	10	2	1,082	0.2000	0.8741	−0.8741					1.12
2012_Trig_FT	916	CR	11	4	1,082	1.0148	0.4957	−1.6860	2.3531	−1.1628			0.93
2012_Trig_FT	917	MC	01	1	1,086	−0.9149							0.93
2012_Trig_FT	917	MC	02	1	1,086	0.5581							1.00
2012_Trig_FT	917	MC	03	1	1,086	0.9941							1.09
2012_Trig_FT	917	MC	04	1	1,086	0.0280							0.99
2012_Trig_FT	917	MC	05	1	1,086	0.0854							1.10
2012_Trig_FT	917	MC	06	1	1,086	−0.9051							0.93
2012_Trig_FT	917	MC	07	1	1,086	1.3331							1.08
2012_Trig_FT	917	CR	08	4	1,086	0.7512	1.0466	−1.1868	0.9995	−0.8593			0.95
2012_Trig_FT	917	CR	09	2	1,086	1.0900	−0.2844	0.2844					0.90
2012_Trig_FT	917	CR	10	4	1,086	1.6862	0.6086	0.0167	−0.2014	−0.4239			0.86
2012_Trig_FT	917	CR	11	2	1,086	0.6071	0.4011	−0.4011					1.08
2012_Trig_FT	918	MC	01	1	1,092	−1.1784							0.96
2012_Trig_FT	918	MC	02	1	1,092	−0.7710							1.06
2012_Trig_FT	918	MC	03	1	1,092	0.2404							0.99
2012_Trig_FT	918	MC	04	1	1,092	−0.3085							0.99
2012_Trig_FT	918	MC	05	1	1,092	0.4946							0.99
2012_Trig_FT	918	MC	06	1	1,092	0.2577							0.98
2012_Trig_FT	918	MC	07	1	1,092	1.1754							1.08
2012_Trig_FT	918	CR	08	2	1,092	0.3922	−0.0409	0.0409					0.94
2012_Trig_FT	918	CR	09	2	1,092	0.8314	−0.5741	0.5741					1.13
2012_Trig_FT	918	CR	10	2	1,092	0.4956	0.3635	−0.3635					0.95
2012_Trig_FT	918	CR	11	6	1,092	1.4114	1.1155	0.7700	−1.7930	0.2910	−0.1269	−0.2567	0.78

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	919	MC	01	1	1,095	0.7283							0.96
2012_Trig_FT	919	MC	02	1	1,095	0.1482							1.04
2012_Trig_FT	919	MC	03	1	1,095	−0.2264							1.05
2012_Trig_FT	919	MC	04	1	1,095	0.6153							0.96
2012_Trig_FT	919	MC	05	1	1,095	0.3156							1.03
2012_Trig_FT	919	MC	06	1	1,095	1.6671							1.04
2012_Trig_FT	919	MC	07	1	1,095	1.3081							1.20
2012_Trig_FT	919	CR	08	4	1,095	0.3247	0.7943	0.1621	−0.4650	−0.4914			0.86
2012_Trig_FT	919	CR	09	4	1,095	0.9688	1.0690	−1.7610	0.4449	0.2471			0.92
2012_Trig_FT	919	CR	10	2	1,095	2.8055	−1.4726	1.4726					0.93
2012_Trig_FT	919	CR	11	2	1,095	0.2760	−0.5701	0.5701					0.99
2012_Trig_FT	920	MC	01	1	1,114	−0.5042							1.00
2012_Trig_FT	920	MC	02	1	1,114	−0.0397							0.99
2012_Trig_FT	920	MC	03	1	1,114	1.5138							1.06
2012_Trig_FT	920	MC	04	1	1,114	−0.9927							0.99
2012_Trig_FT	920	MC	05	1	1,114	0.1434							1.03
2012_Trig_FT	920	MC	06	1	1,114	0.5182							1.08
2012_Trig_FT	920	MC	07	1	1,114	−0.3397							1.06
2012_Trig_FT	920	CR	08	2	1,114	1.0246	1.0706	−1.0706					0.92
2012_Trig_FT	920	CR	09	6	1,114	0.8259	−0.2763	−1.6119	−0.5338	0.2820	1.1474	0.9926	1.00
2012_Trig_FT	920	CR	10	2	1,114	0.4346	1.1641	−1.1641					0.96
2012_Trig_FT	920	CR	11	2	1,114	0.5693	0.4620	−0.4620					0.95
2012_Trig_FT	921	MC	01	1	1,097	−0.6409							1.05
2012_Trig_FT	921	MC	02	1	1,097	0.4206							1.10

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	921	MC	03	1	1,097	0.2617							1.13
2012_Trig_FT	921	MC	04	1	1,097	−0.6014							1.00
2012_Trig_FT	921	MC	05	1	1,097	−1.1076							1.01
2012_Trig_FT	921	MC	06	1	1,097	0.5305							1.01
2012_Trig_FT	921	MC	07	1	1,097	−1.1378							1.02
2012_Trig_FT	921	CR	08	2	1,097	0.3472	0.8151	−0.8151					0.84
2012_Trig_FT	921	CR	09	2	1,097	0.2648	0.2063	−0.2063					0.95
2012_Trig_FT	921	CR	10	4	1,097	0.3714	1.2683	−0.4709	0.1139	−0.9112			1.02
2012_Trig_FT	921	CR	11	4	1,097	0.3563	1.0832	−0.8532	−0.1336	−0.0964			0.89
2012_Trig_FT	922	MC	01	1	1,098	−0.3056							0.94
2012_Trig_FT	922	MC	02	1	1,098	−0.5259							1.16
2012_Trig_FT	922	MC	03	1	1,098	0.2499							0.91
2012_Trig_FT	922	MC	04	1	1,098	0.6592							1.15
2012_Trig_FT	922	MC	05	1	1,098	0.0307							1.03
2012_Trig_FT	922	MC	06	1	1,098	−2.0951							0.90
2012_Trig_FT	922	MC	07	1	1,098	−0.0034							1.02
2012_Trig_FT	922	CR	08	4	1,098	0.2903	0.6163	−1.5350	0.5116	0.4071			1.12
2012_Trig_FT	922	CR	09	2	1,098	1.4576	0.1515	−0.1515					0.96
2012_Trig_FT	922	CR	10	2	1,098	0.8738	−0.0327	0.0327					0.87
2012_Trig_FT	922	CR	11	2	1,098	0.8267	−0.3804	0.3804					0.90
2012_Trig_FT	923	MC	01	1	1,084	−0.4175							0.96
2012_Trig_FT	923	MC	02	1	1,084	−0.2342							0.97
2012_Trig_FT	923	MC	03	1	1,084	−0.2258							0.99
2012_Trig_FT	923	MC	04	1	1,084	0.1203							1.01
2012_Trig_FT	923	MC	05	1	1,084	−0.7486							0.99

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	923	MC	06	1	1,084	−0.0403							1.11
2012_Trig_FT	923	MC	07	1	1,084	0.9681							1.07
2012_Trig_FT	923	CR	08	4	1,084	0.5614	0.4500	0.0506	0.0569	−0.5575			1.01
2012_Trig_FT	923	CR	09	4	1,084	0.5259	1.4940	−0.7488	0.1700	−0.9152			1.11
2012_Trig_FT	923	CR	10	2	1,084	0.5647	0.2159	−0.2159					0.98
2012_Trig_FT	923	CR	11	2	1,084	0.8802	0.5756	−0.5756					0.87
2012_Trig_FT	924	MC	01	1	1,105	0.1501							1.04
2012_Trig_FT	924	MC	02	1	1,105	1.6688							1.01
2012_Trig_FT	924	MC	03	1	1,105	−0.2384							1.04
2012_Trig_FT	924	MC	04	1	1,105	1.3244							1.05
2012_Trig_FT	924	MC	05	1	1,105	0.2549							1.00
2012_Trig_FT	924	MC	06	1	1,105	0.7124							0.99
2012_Trig_FT	924	MC	07	1	1,105	0.2633							1.16
2012_Trig_FT	924	CR	08	2	1,105	1.2280	0.6636	−0.6636					0.95
2012_Trig_FT	924	CR	09	4	1,105	0.5683	−0.3984	0.6051	0.0402	−0.2470			0.92
2012_Trig_FT	924	CR	10	4	1,105	0.3933	−0.0338	0.1379	0.7506	−0.8547			0.92
2012_Trig_FT	924	CR	11	2	1,105	0.9217	0.7050	−0.7050					0.94
2012_Trig_FT	925	MC	01	1	1,104	−0.0146							1.04
2012_Trig_FT	925	MC	02	1	1,104	−1.5058							0.96
2012_Trig_FT	925	MC	03	1	1,104	0.4075							1.14
2012_Trig_FT	925	MC	04	1	1,104	0.7107							1.05
2012_Trig_FT	925	MC	05	1	1,104	−1.9516							0.95
2012_Trig_FT	925	MC	06	1	1,104	0.5035							1.09
2012_Trig_FT	925	MC	07	1	1,104	−1.0556							1.01
2012_Trig_FT	925	CR	08	2	1,104	0.5126	1.1634	−1.1634					1.02

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	925	CR	09	4	1,104	0.7013	1.4099	−0.9251	0.0998	−0.5846			0.89
2012_Trig_FT	925	CR	10	2	1,104	1.3826	0.0089	−0.0089					0.89
2012_Trig_FT	925	CR	11	4	1,104	0.5490	1.7720	−0.6016	0.3822	−1.5525			0.90
2012_Trig_FT	926	MC	01	1	1,085	−0.0637							1.08
2012_Trig_FT	926	MC	02	1	1,085	0.5652							1.00
2012_Trig_FT	926	MC	03	1	1,085	0.0850							1.09
2012_Trig_FT	926	MC	04	1	1,085	−1.8539							1.02
2012_Trig_FT	926	MC	05	1	1,085	−0.7384							1.05
2012_Trig_FT	926	MC	06	1	1,085	1.9779							1.16
2012_Trig_FT	926	MC	07	1	1,085	0.3911							1.01
2012_Trig_FT	926	CR	08	4	1,085	1.2330	−0.1408	0.5982	−0.2551	−0.2023			0.94
2012_Trig_FT	926	CR	09	2	1,085	1.0612	−0.3968	0.3968					0.91
2012_Trig_FT	926	CR	10	2	1,085	−0.5372	0.4002	−0.4002					0.83
2012_Trig_FT	926	CR	11	4	1,085	0.9396	1.2766	−0.5352	1.2145	−1.9559			0.93
2012_Trig_FT	927	MC	01	1	1,093	−0.1356							1.11
2012_Trig_FT	927	MC	02	1	1,093	0.2864							1.03
2012_Trig_FT	927	MC	03	1	1,093	−0.1865							0.99
2012_Trig_FT	927	MC	04	1	1,093	0.2561							1.04
2012_Trig_FT	927	MC	05	1	1,093	−1.1043							0.91
2012_Trig_FT	927	MC	06	1	1,093	−1.3971							1.01
2012_Trig_FT	927	MC	07	1	1,093	−0.7820							1.08
2012_Trig_FT	927	CR	08	2	1,093	0.4889	0.6689	−0.6689					1.01
2012_Trig_FT	927	CR	09	2	1,093	1.5307	0.6408	−0.6408					0.92
2012_Trig_FT	927	CR	10	6	1,093	0.4284	−2.1744	1.1472	0.5168	−0.0389	−0.4550	1.0043	0.85
2012_Trig_FT	927	CR	11	2	1,093	0.8288	0.6582	−0.6582					1.03

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	928	MC	01	1	1,076	1.1261							1.03
2012_Trig_FT	928	MC	02	1	1,076	−0.9719							0.97
2012_Trig_FT	928	MC	03	1	1,076	0.9916							1.13
2012_Trig_FT	928	MC	04	1	1,076	−1.2488							0.98
2012_Trig_FT	928	MC	05	1	1,076	−0.1083							1.03
2012_Trig_FT	928	MC	06	1	1,076	−0.6654							0.96
2012_Trig_FT	928	MC	07	1	1,076	−0.0265							0.97
2012_Trig_FT	928	CR	08	2	1,076	0.4338	1.3156	−1.3156					1.12
2012_Trig_FT	928	CR	09	4	1,076	1.8117	1.0712	0.5017	−0.6696	−0.9033			0.86
2012_Trig_FT	928	CR	10	4	1,076	1.2603	−0.1518	0.5629	−0.2024	−0.2088			0.85
2012_Trig_FT	928	CR	11	2	1,076	1.0836	0.3322	−0.3322					1.02
2012_Trig_FT	929	MC	01	1	1,074	0.0001							1.01
2012_Trig_FT	929	MC	02	1	1,074	1.2794							1.14
2012_Trig_FT	929	MC	03	1	1,074	−0.1386							0.94
2012_Trig_FT	929	MC	04	1	1,074	−0.1008							1.01
2012_Trig_FT	929	MC	05	1	1,074	1.3886							1.06
2012_Trig_FT	929	MC	06	1	1,074	−1.5265							1.07
2012_Trig_FT	929	MC	07	1	1,074	0.9405							1.10
2012_Trig_FT	929	CR	08	4	1,074	0.3448	1.4580	−0.7762	1.3747	−2.0565			0.93
2012_Trig_FT	929	CR	09	2	1,074	−0.0115	1.4565	−1.4565					0.95
2012_Trig_FT	929	CR	10	4	1,074	0.8865	0.8517	−0.4177	−0.6103	0.1763			0.89
2012_Trig_FT	929	CR	11	2	1,074	1.2429	0.4256	−0.4256					0.89
2012_Trig_FT	930	MC	01	1	1,074	0.5016							1.00
2012_Trig_FT	930	MC	02	1	1,074	1.0318							1.06

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	930	MC	03	1	1,074	−0.9352							0.89
2012_Trig_FT	930	MC	04	1	1,074	−0.0251							1.13
2012_Trig_FT	930	MC	05	1	1,074	−0.0122							1.04
2012_Trig_FT	930	MC	06	1	1,074	−1.0282							1.04
2012_Trig_FT	930	MC	07	1	1,074	1.5553							1.02
2012_Trig_FT	930	CR	08	4	1,074	0.5264	0.1334	0.8107	−0.2624	−0.6817			0.92
2012_Trig_FT	930	CR	09	2	1,074	1.1274	0.1153	−0.1153					0.84
2012_Trig_FT	930	CR	10	2	1,074	−0.0755	0.9360	−0.9360					1.10
2012_Trig_FT	930	CR	11	4	1,074	0.7482	0.1921	−0.1895	0.4492	−0.4518			0.96
2012_Trig_FT	931	MC	01	1	1,065	−0.8222							1.07
2012_Trig_FT	931	MC	02	1	1,065	−0.4713							0.99
2012_Trig_FT	931	MC	03	1	1,065	0.4057							1.05
2012_Trig_FT	931	MC	04	1	1,065	0.4240							0.96
2012_Trig_FT	931	MC	05	1	1,065	0.9240							0.99
2012_Trig_FT	931	MC	06	1	1,065	0.3783							1.00
2012_Trig_FT	931	MC	07	1	1,065	−0.0040							0.94
2012_Trig_FT	931	CR	08	2	1,065	1.6787	0.5029	−0.5029					1.09
2012_Trig_FT	931	CR	09	6	1,065	1.2724	1.0145	−0.5048	−0.5580	0.1163	−0.5935	0.5256	0.79
2012_Trig_FT	931	CR	10	2	1,065	1.1308	0.6858	−0.6858					1.10
2012_Trig_FT	931	CR	11	2	1,065	0.8613	−0.2296	0.2296					1.01
2012_Trig_FT	932	MC	01	1	1,069	−1.2367							1.12
2012_Trig_FT	932	MC	02	1	1,069	0.4159							0.93
2012_Trig_FT	932	MC	03	1	1,069	0.5918							0.95
2012_Trig_FT	932	MC	04	1	1,069	−0.6704							0.98
2012_Trig_FT	932	MC	05	1	1,069	−0.2459							1.02

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	S6	INFIT
2012_Trig_FT	932	MC	06	1	1,069	−0.8239							1.03
2012_Trig_FT	932	MC	07	1	1,069	0.7864							1.04
2012_Trig_FT	932	CR	08	2	1,069	0.8593	0.4020	−0.4020					0.92
2012_Trig_FT	932	CR	09	4	1,069	−0.0799	1.8353	−1.0528	0.6000	−1.3825			1.08
2012_Trig_FT	932	CR	10	4	1,069	0.3007	0.5263	0.6323	0.2981	−1.4567			0.95
2012_Trig_FT	932	CR	11	2	1,069	1.8894	0.0143	−0.0143					0.95

Appendix C: DIF Statistics

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
901	01	MC	−0.46	2.30	−0.08		
901	02	MC	−0.35	0.82	−0.06		
901	03	MC	−0.89	7.48	−0.16		
901	04	MC	−0.55	3.18	−0.11		
901	05	MC	0.05	0.03	0.01		
901	06	MC	0.19	0.33	0.03		
901	07	MC	0.13	0.15	0.02		
901	08	OE		0.08	−0.01		
901	09	OE		1.63	0.06		
901	10	OE		1.04	0.05		
901	11	OE		0.56	0.03		
902	01	MC	0.12	0.14	0.03		
902	02	MC	−1.43	21.41	−0.27	B	Males
902	03	MC	−0.54	2.74	−0.08		
902	04	MC	0.29	0.44	0.04		
902	05	MC	0.47	2.39	0.08		
902	06	MC	−0.36	1.25	−0.08		
902	07	MC	−0.45	2.12	−0.08		
902	08	OE		2.03	0.07		
902	09	OE		0.00	0.00		
902	10	OE		2.05	0.07		
902	11	OE		3.00	0.09		
903	01	MC	0.05	0.02	0.03		
903	02	MC	−1.36	15.13	−0.24	B	Males
903	03	MC	−0.44	1.92	−0.10		
903	04	MC	0.46	1.94	0.07		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
903	05	MC	0.35	1.13	0.05		
903	06	MC	0.53	1.24	0.06		
903	07	MC	0.05	0.02	0.00		
903	08	OE		0.22	0.03		
903	09	OE		1.54	0.06		
903	10	OE		0.92	−0.04		
903	11	OE		0.51	0.03		
904	01	MC	0.09	0.08	0.02		
904	02	MC	−0.36	1.24	−0.06		
904	03	MC	−0.93	6.33	−0.16		
904	04	MC	0.19	0.32	0.01		
904	05	MC	−0.70	4.75	−0.14		
904	06	MC	−0.63	3.81	−0.10		
904	07	MC	−0.12	0.14	−0.01		
904	08	OE		2.68	0.08		
904	09	OE		0.01	−0.01		
904	10	OE		0.64	0.03		
904	11	OE		0.85	0.04		
905	01	MC	0.30	0.92	0.08		
905	02	MC	−0.54	2.34	−0.10		
905	03	MC	0.25	0.70	0.05		
905	04	MC	−0.18	0.30	−0.04		
905	05	MC	−0.29	0.81	−0.05		
905	06	MC	−0.63	3.94	−0.12		
905	07	MC	−0.15	0.23	−0.03		
905	08	OE		4.38	0.14		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
905	09	OE		2.69	0.07		
905	10	OE		11.18	−0.18	BB	Males
905	11	OE		0.83	0.03		
906	01	MC	−0.39	1.48	−0.07		
906	02	MC	−0.41	1.05	−0.05		
906	03	MC	0.72	4.61	0.12		
906	04	MC	−0.22	0.38	−0.04		
906	05	MC	−0.46	2.18	−0.08		
906	06	MC	−1.35	17.39	−0.24	B	Males
906	07	MC	0.21	0.30	0.03		
906	08	OE		0.91	0.06		
906	09	OE		0.46	0.03		
906	10	OE		3.74	0.10		
906	11	OE		0.61	0.04		
907	01	MC	−0.20	0.40	−0.04		
907	02	MC	0.41	1.48	0.08		
907	03	MC	−0.51	2.76	−0.09		
907	04	MC	−0.59	3.52	−0.11		
907	05	MC	−0.37	0.89	−0.06		
907	06	MC	−0.10	0.09	−0.02		
907	07	MC	−1.75	29.53	−0.29	C	Males
907	08	OE		0.22	0.01		
907	09	OE		1.24	0.06		
907	10	OE		6.18	0.08		
907	11	OE		0.81	0.04		
908	01	MC	0.00	0.00	0.01		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
908	02	MC	−0.05	0.03	−0.02		
908	03	MC	0.56	3.16	0.10		
908	04	MC	−0.44	1.65	−0.07		
908	05	MC	−0.04	0.02	−0.01		
908	06	MC	0.04	0.02	0.01		
908	07	MC	−0.26	0.63	−0.04		
908	08	OE		0.94	−0.04		
908	09	OE		0.36	0.03		
908	10	OE		1.88	0.06		
908	11	OE		0.46	−0.03		
909	01	MC	−0.55	1.78	−0.08		
909	02	MC	−0.66	4.08	−0.11		
909	03	MC	−0.59	3.40	−0.10		
909	04	MC	−0.19	0.23	−0.04		
909	05	MC	0.13	0.19	0.03		
909	06	MC	−0.68	4.43	−0.12		
909	07	MC	−0.40	1.21	−0.06		
909	08	OE		0.00	0.01		
909	09	OE		5.52	0.09		
909	10	OE		0.10	0.02		
909	11	OE		2.37	0.06		
910	01	MC	0.10	0.08	0.00		
910	02	MC	0.12	0.12	0.02		
910	03	MC	−0.99	9.22	−0.17		
910	04	MC	−0.37	1.28	−0.06		
910	05	MC	−0.19	0.32	−0.03		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
910	06	MC	−0.63	3.75	−0.12		
910	07	MC	−0.37	1.15	−0.07		
910	08	OE		0.05	0.01		
910	09	OE		0.21	0.03		
910	10	OE		3.72	0.07		
910	11	OE		2.26	0.07		
911	01	MC	−0.38	1.15	−0.06		
911	02	MC	−0.02	0.00	−0.01		
911	03	MC	−0.27	0.67	−0.05		
911	04	MC	−0.21	0.16	−0.02		
911	05	MC	−0.84	5.96	−0.15		
911	06	MC	0.98	8.15	0.15		
911	07	MC	0.42	1.82	0.10		
911	08	OE		0.00	0.00		
911	09	OE		7.85	−0.15		
911	10	OE		3.72	−0.10		
911	11	OE		21.55	0.23	BB	Females
912	01	MC	−0.19	0.34	−0.03		
912	02	MC	0.33	0.62	0.04		
912	03	MC	0.23	0.53	0.04		
912	04	MC	−0.35	1.25	−0.06		
912	05	MC	−0.20	0.40	−0.03		
912	06	MC	0.22	0.52	0.04		
912	07	MC	−0.48	2.36	−0.08		
912	08	OE		0.40	−0.05		
912	09	OE		3.72	−0.09		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
912	10	OE		4.63	0.07		
912	11	OE		0.04	0.00		
913	01	MC	0.23	0.55	0.06		
913	02	MC	−0.63	3.84	−0.12		
913	03	MC	−0.38	1.40	−0.07		
913	04	MC	−0.01	0.00	−0.01		
913	05	MC	−0.38	1.30	−0.07		
913	06	MC	0.32	0.65	0.05		
913	07	MC	−1.10	9.53	−0.17	B	Males
913	08	OE		0.02	0.00		
913	09	OE		0.45	0.05		
913	10	OE		2.30	0.06		
913	11	OE		0.90	0.04		
914	01	MC	−1.07	10.82	−0.16	B	Males
914	02	MC	0.03	0.01	0.01		
914	03	MC	−0.18	0.31	−0.03		
914	04	MC	0.26	0.53	0.05		
914	05	MC	−0.32	0.65	−0.03		
914	06	MC	−0.02	0.00	0.01		
914	07	MC	0.03	0.01	0.01		
914	08	OE		10.99	0.21	BB	Females
914	09	OE		4.85	0.11		
914	10	OE		4.56	−0.09		
914	11	OE		1.59	−0.03		
915	01	MC	−0.86	7.04	−0.14		
915	02	MC	0.12	0.16	0.01		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
915	03	MC	−0.19	0.33	−0.04		
915	04	MC	−0.25	0.60	−0.03		
915	05	MC	0.27	0.69	0.06		
915	06	MC	0.67	3.33	0.11		
915	07	MC	−0.84	6.14	−0.14		
915	08	OE		0.48	0.02		
915	09	OE		0.09	0.00		
915	10	OE		2.02	0.08		
915	11	OE		0.00	−0.01		
916	01	MC	0.46	2.14	0.09		
916	02	MC	0.34	1.19	0.07		
916	03	MC	−0.51	2.44	−0.09		
916	04	MC	−0.01	0.00	0.01		
916	05	MC	0.06	0.03	0.02		
916	06	MC	0.32	1.02	0.06		
916	07	MC	0.02	0.01	0.01		
916	08	OE		0.02	0.01		
916	09	OE		0.03	0.02		
916	10	OE		0.02	0.02		
916	11	OE		2.79	−0.06		
917	01	MC	−0.57	2.61	−0.07		
917	02	MC	−0.36	1.18	−0.06		
917	03	MC	0.07	0.04	0.02		
917	04	MC	0.35	1.13	0.07		
917	05	MC	−0.03	0.01	0.00		
917	06	MC	−0.68	3.65	−0.10		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
917	07	MC	−0.53	2.00	−0.09		
917	08	OE		2.25	0.06		
917	09	OE		0.08	0.01		
917	10	OE		2.62	0.06		
917	11	OE		0.58	−0.04		
918	01	MC	0.38	1.12	0.07		
918	02	MC	0.31	0.97	0.06		
918	03	MC	0.25	0.61	0.04		
918	04	MC	−0.63	3.85	−0.11		
918	05	MC	0.35	1.17	0.07		
918	06	MC	−1.30	16.17	−0.22	B	Males
918	07	MC	−0.46	1.77	−0.08		
918	08	OE		0.01	0.01		
918	09	OE		0.09	0.02		
918	10	OE		9.84	0.17		
918	11	OE		0.91	−0.04		
919	01	MC	−0.05	0.02	0.00		
919	02	MC	−0.46	2.18	−0.10		
919	03	MC	0.04	0.01	0.01		
919	04	MC	0.50	2.21	0.07		
919	05	MC	−0.56	3.09	−0.09		
919	06	MC	−0.10	0.06	−0.02		
919	07	MC	0.13	0.12	0.04		
919	08	OE		6.48	0.11		
919	09	OE		3.42	−0.08		
919	10	OE		2.32	−0.07		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
919	11	OE		0.20	0.02		
920	01	MC	0.08	0.06	0.01		
920	02	MC	−1.09	11.99	−0.19	B	Males
920	03	MC	−0.49	1.62	−0.08		
920	04	MC	0.22	0.47	0.04		
920	05	MC	−0.38	1.46	−0.06		
920	06	MC	0.45	2.01	0.10		
920	07	MC	0.41	1.82	0.10		
920	08	OE		0.11	0.02		
920	09	OE		0.56	−0.01		
920	10	OE		9.51	0.18	BB	Females
920	11	OE		0.88	−0.04		
921	01	MC	0.41	1.66	0.06		
921	02	MC	−0.13	0.18	−0.02		
921	03	MC	−0.28	0.83	−0.05		
921	04	MC	0.39	1.48	0.06		
921	05	MC	−0.99	8.05	−0.16		
921	06	MC	−0.23	0.53	−0.05		
921	07	MC	−0.11	0.10	−0.02		
921	08	OE		2.21	−0.06		
921	09	OE		0.12	−0.02		
921	10	OE		2.45	0.07		
921	11	OE		0.25	0.02		
922	01	MC	−0.37	1.24	−0.06		
922	02	MC	−0.12	0.16	−0.03		
922	03	MC	−1.21	12.57	−0.19	B	Males

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
922	04	MC	−0.27	0.71	−0.06		
922	05	MC	0.23	0.53	0.03		
922	06	MC	0.12	0.07	0.01		
922	07	MC	0.37	1.35	0.07		
922	08	OE		0.66	0.04		
922	09	OE		3.38	−0.08		
922	10	OE		1.29	0.06		
922	11	OE		3.26	0.08		
923	01	MC	0.24	0.52	0.05		
923	02	MC	−0.18	0.32	−0.02		
923	03	MC	−0.41	1.63	−0.08		
923	04	MC	−0.57	3.21	−0.11		
923	05	MC	−0.98	8.76	−0.16		
923	06	MC	−0.12	0.16	−0.02		
923	07	MC	−0.32	0.88	−0.07		
923	08	OE		0.09	0.00		
923	09	OE		1.59	0.06		
923	10	OE		2.22	0.09		
923	11	OE		0.42	0.03		
924	01	MC	0.38	1.46	0.07		
924	02	MC	−1.11	6.91	−0.15	B	Males
924	03	MC	−0.31	1.00	−0.05		
924	04	MC	−0.41	1.20	−0.05		
924	05	MC	0.26	0.66	0.04		
924	06	MC	−1.66	24.25	−0.26	C	Males
924	07	MC	−0.22	0.54	−0.04		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
924	08	OE		0.45	−0.05		
924	09	OE		3.38	0.08		
924	10	OE		4.25	0.10		
924	11	OE		0.07	0.00		
925	01	MC	−0.53	2.98	−0.08		
925	02	MC	0.01	0.00	0.02		
925	03	MC	−0.05	0.03	−0.02		
925	04	MC	0.46	1.96	0.08		
925	05	MC	−0.02	0.00	−0.01		
925	06	MC	−0.46	2.15	−0.09		
925	07	MC	−0.42	1.56	−0.09		
925	08	OE		5.66	0.12		
925	09	OE		0.17	0.02		
925	10	OE		2.09	−0.08		
925	11	OE		0.00	0.00		
926	01	MC	−0.96	9.79	−0.18		
926	02	MC	−0.19	0.33	−0.03		
926	03	MC	0.08	0.07	0.01		
926	04	MC	0.25	0.39	0.04		
926	05	MC	1.09	11.25	0.20	B	Females
926	06	MC	−1.19	8.08	−0.18	B	Males
926	07	MC	−0.28	0.72	−0.05		
926	08	OE		4.75	0.10		
926	09	OE		7.30	−0.12		
926	10	OE		4.79	0.11		
926	11	OE		0.14	−0.01		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
927	01	MC	−0.43	2.01	−0.09		
927	02	MC	0.41	1.72	0.07		
927	03	MC	−0.40	1.57	−0.07		
927	04	MC	−0.86	7.35	−0.16		
927	05	MC	0.55	2.29	0.07		
927	06	MC	−0.27	0.58	−0.03		
927	07	MC	−0.14	0.20	−0.03		
927	08	OE		1.99	0.08		
927	09	OE		0.21	−0.01		
927	10	OE		1.64	0.04		
927	11	OE		0.33	−0.03		
928	01	MC	−0.58	2.64	−0.09		
928	02	MC	0.46	1.77	0.07		
928	03	MC	0.65	3.64	0.12		
928	04	MC	0.17	0.22	0.03		
928	05	MC	0.04	0.01	0.01		
928	06	MC	0.11	0.11	0.02		
928	07	MC	0.58	3.26	0.10		
928	08	OE		4.98	−0.12		
928	09	OE		0.16	0.02		
928	10	OE		3.86	−0.09		
928	11	OE		2.85	0.09		
929	01	MC	0.48	2.36	0.10		
929	02	MC	−0.72	3.98	−0.13		
929	03	MC	0.08	0.06	0.02		
929	04	MC	−0.49	2.37	−0.09		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
929	05	MC	−0.82	4.64	−0.13		
929	06	MC	−0.65	3.04	−0.10		
929	07	MC	−0.03	0.01	−0.02		
929	08	OE		0.02	0.00		
929	09	OE		5.74	−0.12		
929	10	OE		12.20	0.16		
929	11	OE		1.90	0.07		
930	01	MC	0.31	0.88	0.06		
930	02	MC	−0.10	0.08	−0.03		
930	03	MC	0.08	0.05	0.01		
930	04	MC	−0.06	0.04	0.00		
930	05	MC	0.52	2.71	0.09		
930	06	MC	−0.64	3.64	−0.10		
930	07	MC	0.01	0.00	0.00		
930	08	OE		0.31	−0.02		
930	09	OE		1.72	−0.06		
930	10	OE		1.14	0.06		
930	11	OE		0.03	0.00		
931	01	MC	−0.23	0.49	−0.04		
931	02	MC	−0.71	4.74	−0.13		

Form	Item	Item Type	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
931	03	MC	−0.08	0.06	−0.02		
931	04	MC	−1.35	15.78	−0.23	B	Males
931	05	MC	−0.52	2.21	−0.09		
931	06	MC	−0.02	0.00	0.00		
931	07	MC	0.58	3.02	0.10		
931	08	OE		1.39	−0.07		
931	09	OE		1.60	0.05		
931	10	OE		12.45	0.19	BB	Females
931	11	OE		0.19	0.03		
932	01	MC	0.17	0.27	0.03		
932	02	MC	−0.05	0.02	0.00		
932	03	MC	0.36	1.10	0.06		
932	04	MC	0.25	0.59	0.05		
932	05	MC	−0.13	0.18	−0.02		
932	06	MC	0.02	0.00	−0.01		
932	07	MC	−0.58	3.05	−0.12		
932	08	OE		1.58	−0.07		
932	09	OE		5.52	−0.11		
932	10	OE		12.00	0.16		
932	11	OE		0.06	−0.01		

*DIF Category meanings: A/AA = negligible, B/BB = moderate, C/CC = large

Appendix D: Operational Test Maps

January 2012

Position	Item Type	Max Points	Weight	Strand	Mean	Point-Biserial	Rasch	S1	S2	S3	S4	S5	S6
1	MC	1	2	Statistics and Probability	0.91	0.22	−2.86						
2	MC	1	2	Algebra	0.81	0.22	−2.02						
3	MC	1	2	Number Sense	0.77	0.33	−1.65						
4	MC	1	2	Algebra	0.66	0.48	−1.10						
5	MC	1	2	Algebra	0.60	0.43	−0.76						
6	MC	1	2	Algebra	0.37	0.25	0.28						
7	MC	1	2	Algebra	0.50	0.41	−0.28						
8	MC	1	2	Algebra	0.56	0.40	−0.56						
9	MC	1	2	Algebra	0.52	0.36	−0.42						
10	MC	1	2	Algebra	0.52	0.24	−0.41						
11	MC	1	2	Algebra	0.42	0.38	0.12						
12	MC	1	2	Statistics and Probability	0.50	0.27	−0.32						
13	MC	1	2	Number Sense	0.49	0.36	−0.21						
14	MC	1	2	Algebra	0.45	0.44	−0.10						
15	MC	1	2	Algebra	0.45	0.17	−0.07						
16	MC	1	2	Algebra	0.29	0.29	0.67						
17	MC	1	2	Algebra	0.41	0.4	0.08						
18	MC	1	2	Algebra	0.47	0.40	−0.11						
19	MC	1	2	Algebra	0.37	0.41	0.28						
20	MC	1	2	Measurement	0.31	0.18	0.62						
21	MC	1	2	Statistics and Probability	0.29	0.35	0.77						

Position	Item Type	Max Points	Weight	Strand	Mean	Point-Biserial	Rasch	S1	S2	S3	S4	S5	S6
22	MC	1	2	Algebra	0.27	0.29	0.80						
23	MC	1	2	Statistics and Probability	0.23	0.31	1.06						
24	MC	1	2	Algebra	0.23	0.09	1.01						
25	MC	1	2	Algebra	0.24	0.39	1.03						
26	MC	1	2	Algebra	0.31	0.37	0.55						
27	MC	1	2	Algebra	0.28	0.27	0.77						
28	CR	2	1	Algebra	0.57	0.58	0.71	−0.38	0.38				
29	CR	2	1	Algebra	1.05	0.62	−0.42	0.32	−0.32				
30	CR	2	1	Number Sense	0.59	0.41	−0.04	−0.03	0.03				
31	CR	2	1	Algebra	0.73	0.56	0.26	−0.05	0.05				
32	CR	2	1	Statistics and Probability	0.91	0.54	−0.12	2.44	−2.44				
33	CR	2	1	Algebra	0.90	0.59	−0.14	0.91	−0.91				
34	CR	2	1	Algebra	0.31	0.66	1.10	0.52	−0.52				
35	CR	2	1	Algebra	0.60	0.61	0.45	0.52	−0.52				
36	CR	4	1	Algebra	1.42	0.78	0.17	2.40	−1.36	0.60	−1.64		
37	CR	4	1	Algebra	1.08	0.62	0.39	1.06	−0.32	0.52	−1.26		
38	CR	4	1	Statistics and Probability	1.51	0.67	0.19	1.41	−1.08	−0.45	0.12		
39	CR	6	1	Algebra	1.19	0.80	0.70	0.45	−0.09	−0.18	−0.18	−0.35	0.34

June 2012

Position	Item Type	Max Points	Weight	Strand	Mean	Point-Biserial	Rasch	S1	S2	S3	S4	S5	S6
1	MC	1	2	Number Sense and Operations	0.76	0.39	−1.60						
2	MC	1	2	Algebra	0.70	0.40	−1.18						
3	MC	1	2	Algebra	0.53	0.45	−0.46						
4	MC	1	2	Algebra	0.67	0.40	−1.12						
5	MC	1	2	Algebra	0.51	0.42	−0.32						
6	MC	1	2	Algebra	0.50	0.34	−0.21						
7	MC	1	2	Algebra	0.52	0.40	−0.31						
8	MC	1	2	Algebra	0.45	0.39	−0.04						
9	MC	1	2	Algebra	0.46	0.34	−0.05						
10	MC	1	2	Algebra	0.45	0.43	−0.04						
11	MC	1	2	Algebra	0.46	0.33	−0.07						
12	MC	1	2	Algebra	0.47	0.31	−0.14						
13	MC	1	2	Algebra	0.45	0.21	0.01						
14	MC	1	2	Algebra	0.46	0.40	0.01						
15	MC	1	2	Algebra	0.44	0.36	0.05						
16	MC	1	2	Algebra	0.52	0.25	−0.34						
17	MC	1	2	Algebra	0.40	0.42	0.19						
18	MC	1	2	Algebra	0.38	0.42	0.25						
19	MC	1	2	Number Sense and Operations	0.39	0.36	0.28						
20	MC	1	2	Algebra	0.40	0.43	0.22						
21	MC	1	2	Statistics and Probability	0.34	0.26	0.45						

Position	Item Type	Max Points	Weight	Strand	Mean	Point-Biserial	Rasch	S1	S2	S3	S4	S5	S6
22	MC	1	2	Algebra	0.37	0.32	0.35						
23	MC	1	2	Statistics and Probability	0.31	0.40	0.67						
24	MC	1	2	Algebra	0.35	0.31	0.41						
25	MC	1	2	Statistics and Probability	0.27	0.31	0.85						
26	MC	1	2	Algebra	0.27	0.31	0.90						
27	MC	1	2	Statistics and Probability	0.30	0.38	0.70						
28	CR	2	1	Number Sense and Operations	0.93	0.55	−0.14	0.61	−0.61				
29	CR	2	1	Algebra	0.90	0.64	−0.02	0.10	−0.10				
30	CR	2	1	Algebra	0.64	0.64	0.52	−0.08	0.08				
31	CR	2	1	Statistics and Probability	0.72	0.50	0.27	0.70	−0.70				
32	CR	2	1	Measurement	0.72	0.54	0.32	−0.59	0.59				
33	CR	2	1	Algebra	0.59	0.54	0.43	1.10	−1.10				
34	CR	2	1	Algebra	0.48	0.54	1.08	−0.68	0.68				
35	CR	2	1	Algebra	0.40	0.57	1.14	−0.05	0.05				
36	CR	4	1	Algebra	1.73	0.68	−0.05	0.70	−0.94	0.36	−0.12		
37	CR	4	1	Statistics and Probability	1.23	0.62	0.27	1.39	−1.49	0.64	−0.53		
38	CR	4	1	Algebra	1.20	0.74	0.27	0.53	0.81	−0.09	−1.26		
39	CR	6	1	Algebra	1.49	0.84	0.50	0.80	0.03	−0.23	0.52	−0.89	−0.23

Appendix E: Scoring Tables

January 2012

Raw Score	Ability	Scale Score		Raw Score	Ability	Scale Score		Raw Score	Ability	Scale Score		Raw Score	Ability	Scale Score
0	−5.935	0.000		24	−0.764	39.418		48	0.258	66.261		72	1.387	88.819
1	−4.689	1.945		25	−0.705	40.742		49	0.293	67.265		73	1.463	89.673
2	−3.940	3.812		26	−0.649	42.046		50	0.329	68.200		74	1.545	90.535
3	−3.481	5.599		27	−0.594	43.326		51	0.364	69.188		75	1.631	91.328
4	−3.144	7.382		28	−0.542	44.591		52	0.400	70.172		76	1.724	92.093
5	−2.874	9.264		29	−0.492	45.825		53	0.436	71.116		77	1.824	92.868
6	−2.648	11.062		30	−0.443	46.975		54	0.473	72.062		78	1.932	93.650
7	−2.453	12.838		31	−0.396	48.217		55	0.511	73.023		79	2.051	94.418
8	−2.280	14.596		32	−0.350	49.348		56	0.549	74.005		80	2.182	95.103
9	−2.126	16.331		33	−0.306	50.519		57	0.589	74.989		81	2.329	95.797
10	−1.986	18.049		34	−0.263	51.666		58	0.629	75.979		82	2.497	96.504
11	−1.858	19.758		35	−0.221	52.768		59	0.670	76.914		83	2.693	97.136
12	−1.740	21.442		36	−0.181	53.870		60	0.713	77.831		84	2.930	97.741
13	−1.630	23.094		37	−0.141	54.946		61	0.757	78.761		85	3.232	98.344
14	−1.528	24.740		38	−0.102	56.020		62	0.803	79.704		86	3.652	98.951
15	−1.432	26.362		39	−0.064	57.107		63	0.850	80.665		87	4.359	99.486
16	−1.341	27.906		40	−0.027	58.142		64	0.900	81.605		88	5.573	100.000
17	−1.256	29.429		41	0.010	59.159		65	0.951	82.521				
18	−1.175	30.920		42	0.046	60.221		66	1.005	83.488				
19	−1.098	32.411		43	0.082	61.198		67	1.061	84.396				
20	−1.025	33.868		44	0.118	62.261		68	1.120	85.314				
21	−0.955	35.317		45	0.153	63.271		69	1.181	86.200				
22	−0.889	36.724		46	0.188	64.261		70	1.246	87.067				
23	−0.825	38.080		47	0.223	65.261		71	1.315	87.970				

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Raw Score	Ability	Scale Score		Raw Score	Ability	Scale Score		Raw Score	Ability	Scale Score		Raw Score	Ability	Scale Score
0	−5.502	0.275		24	−0.698	40.907		48	0.297	67.368		72	1.429	89.298
1	−4.282	2.824		25	−0.644	42.162		49	0.333	68.304		73	1.504	90.117
2	−3.567	5.211		26	−0.591	43.401		50	0.368	69.310		74	1.584	90.923
3	−3.140	7.405		27	−0.541	44.630		51	0.405	70.288		75	1.669	91.650
4	−2.831	9.600		28	−0.492	45.830		52	0.441	71.233		76	1.761	92.383
5	−2.587	11.599		29	−0.444	46.956		53	0.478	72.180		77	1.859	93.125
6	−2.384	13.508		30	−0.398	48.173		54	0.516	73.140		78	1.966	93.876
7	−2.210	15.367		31	−0.353	49.293		55	0.554	74.117		79	2.083	94.589
8	−2.056	17.170		32	−0.309	50.447		56	0.593	75.091		80	2.212	95.251
9	−1.920	18.930		33	−0.266	51.593		57	0.633	76.068		81	2.358	95.924
10	−1.795	20.642		34	−0.224	52.690		58	0.673	76.982		82	2.524	96.609
11	−1.682	22.303		35	−0.184	53.796		59	0.715	77.880		83	2.718	97.207
12	−1.577	23.935		36	−0.144	54.879		60	0.759	78.789		84	2.953	97.789
13	−1.479	25.545		37	−0.104	55.961		61	0.803	79.708		85	3.252	98.378
14	−1.388	27.113		38	−0.066	57.059		62	0.849	80.640		86	3.669	98.972
15	−1.302	28.560		39	−0.028	58.110		63	0.897	81.553		87	4.374	99.495
16	−1.222	30.072		40	0.010	59.140		64	0.946	82.428		88	5.587	100.000
17	−1.145	31.465		41	0.046	60.218		65	0.998	83.371				
18	−1.072	32.937		42	0.083	61.213		66	1.051	84.242				
19	−1.003	34.305		43	0.119	62.295		67	1.107	85.119				
20	−0.937	35.715		44	0.155	63.318		68	1.165	85.992				
21	−0.873	37.044		45	0.190	64.325		69	1.226	86.788				
22	−0.813	38.345		46	0.226	65.340		70	1.290	87.677				
23	−0.754	39.632		47	0.261	66.353		71	1.358	88.489				