

TECHNICAL REPORT



**for the
Pennsylvania
System of School Assessment**

**2006 Grade 12 Fall Retest
Mathematics, Reading, and Writing**

**Provided by
Data Recognition Corporation**

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PSSA: The Pennsylvania System of School Assessment

The purposes of the 2006 statewide assessment component of the Pennsylvania System of School Assessment, as specified in the Chapter 4 Regulations, include providing:

- (1) an understanding of the students' achievement of the academic standards to students, parents, educators and community citizens,
- (2) a measure of the degree to which school programs enable students to attain the academic standards,
- (3) results to school districts, charter schools and Area Vocational Technical Schools, Intermediate Units, Private Residential Rehabilitative Institutions, Approved Private Schools, non-public and private schools for use in their strategic plans,
- (4) information to the general public and state policymakers regarding school achievement of the academic standards, and
- (5) aggregate results for all students and in compliance with federal No Child Left Behind regulations, disaggregated results for various demographic and special needs groups.

The broad purpose of the State Assessments is to provide information to teachers and schools to guide the improvement of curricula and instructional strategies to enable students to achieve the academic standards. The areas assessed in 2006 were mathematics and reading at grades 3-8 and 11 and writing at grades 5, 8, and 11. *The Department strongly discourages the use of this testing information for "ranking" schools.*

Item Analysis

Multiple-Choice Items

Although all items had been reviewed several times prior to testing, a thorough item analysis was conducted to ensure that the items and forms performed as expected. In general, *more able*¹ students are expected to pass easy items, and *less able* students are expected to fail difficult items. If either of these situations does not occur, the item should be reviewed once more to determine the nature of the problem and the characteristics of the students affected.

The most familiar indices of item performance are those that reflect item difficulty (e.g., *proportion correct*, generally referred to as a "p-value") and those that reflect item discrimination (often represented by the *point-biserial correlation* coefficient). The point-biserial coefficient will be positive if the total test mean score is higher for the students who respond correctly to the item than for the students who respond incorrectly.

The p-value is a subtler indicator of item quality, but the value should be appropriate for the item. If there is a *more able* way to miss an item, the item will appear more difficult than seems warranted given the skill set required to answer the item correctly. Conversely, if there is a *less able* way to pass the item, the item may appear surprisingly easy.

¹ Following the Rasch literature, *ability* is used in this discussion as a generic term for the construct that is being measured by the exam. *Competence*, *achievement*, *learning* and *status* are among the alternatives that are sometimes used, but are all subject to some degree of misinterpretation.

The item-level analyses done for the grade 12 retest also included the percent of students selecting each incorrect response (distractor). This information is useful for understanding the item's behavior. The percent selecting each response is an indicator of which responses are particularly attractive. Item level statistics for the multiple-choice items for Mathematics, Reading, and Writing can be found in Appendices A, D, and G, respectively. In the appendices, the "-" code denotes an omit and the "*" code denotes multiple marks.

Constructed-Response Items

The first statistics that should be examined when addressing the quality of constructed-response items is the score-point distribution. An examination of the score-point distribution (percentages of students in each scoring category) can provide a rough "snap shot" of an item's quality. For example, a four-point constructed-response item with a vast majority of students receiving *ones* and *fours* with virtually no scores occurring in between would be considered highly suspect. Item level statistics for the constructed-response items for Mathematics, Reading, and Writing can be found in Appendices C, F, and I, respectively. In the appendices, the "B" code denotes a blank non-response, the "F" code denotes a response in a foreign language, the "K" code denotes an off-task response, and the "U" code denotes an unreadable response.

Raw-to-Scaled Score Conversions

A *Scaled Score*, in the simplest sense, is a transformed number-correct score. This transformation is done in two steps. First, there is a nonlinear transformation that converts number-correct scores—or, in the case of tests with differentially-weighted items, the total number of points attained—to logits, and then there is a linear transformation to convert logits to scaled scores. When all students take the same items, as in the common sections of the PSSA (or all items on the grade 12 fall retest), higher number-correct scores are associated with higher scaled scores.

Scaled scores have several interpretive advantages over raw scores, as illustrated in the following example. A raw score of, for instance, 30 is almost meaningless unless the reader is also told how many points were possible. The same score has quite different meaning if it is based on a thirty-item test or on a sixty-item test. *Total points attained are transformed to percent correct scores to remove the effect of test length.* In the same way, a score based on sixty *difficult items* is quite different from the same score based on sixty *easy items*. *Total points attained are transformed to scaled scores to remove the effects of test length and item difficulty.*

Table 1 describes the equations used to transform the logit scores to the scaled scores.

Table 1: Logit-to-Scaled Score Conversions

Subject	Transformation
Mathematics	$206.42X + 1203.1$
Reading	$245.45X + 1115.2$
Writing	$100.01X + 1244.32$

To maximize their utility, scaled scores need to be placed in a meaningful context. A temperature of 37 degrees does not provide useful information unless the scale is anchored to some known point. In this context, some useful anchors might be the freezing point of water or perhaps the normal body temperature of humans. To be meaningful, the new metric must be related to known

objects and situations—in other words, some sort of *measurement standard*. Subsequent sections of this report provide descriptions of the results in the context of these *performance standards* and in terms of scaled scores.

Summary of the Grade 12 Retest Results

Students in the twelfth grade are allowed a final opportunity to improve their status with respect to the Advanced/Proficient certification for Reading, Mathematics, and Writing. This opportunity is provided through a special fall administration of the PSSA. The 2006 retest consisted of the common sections from the 2006 grade-eleven spring administration, and therefore, the raw-to-scaled score conversion tables were available prior to the fall testing. While this was true for reading and mathematics, the raw-to-scaled score conversion tables for writing had to be adjusted due to the replacement of one of the writing prompts. The RS-SS tables for Mathematics, Reading, and Writing can be found in Appendices K, L, and M, respectively.

Students performed less well on the retest than students who took the tests the previous spring in all three content areas. These results are to be expected in a retest situation because the group taking the retest is typically comprised of students who have performed poorly on the previous administration. In this report, results from all fall retest students are compared with results from all spring operational retest students. The two distributions do not entirely overlap due to the presence of students who took the fall retest but did not take the spring operational test.

In addition to the mean scores being lower for the retest group than for the spring group, the standard deviations are also lower. Smaller standard deviations are the result of a more homogeneous score distribution, an artifact of the aforementioned tendency for retesters to be lower achieving students. The relatively lower test reliabilities (based on Coefficient Alpha) for Reading and Mathematics can also be attributed to the decreased variability in test scores. Reliabilities for the Writing inventory are given in the form of stratified alpha coefficients.

Table 2: Operational and Retest Summary Statistics (Scaled Score Metric)

	Mathematics		Reading		Writing	
	Operational	Retest	Operational	Retest	Operational	Retest
Count	134411	33399	134083	22783	132210	7621
Mean	1341	1138	1365	1149	1514	1234
Std. Deviation	293	173	279	201	275	210
Minimum	700	700	700	700	700	700
Maximum	2398	2398	2631	2317	2356	2317
Reliability	0.94	0.88	0.90	0.79	0.79	0.79

In 2002, a minimum scaled score of 700 was implemented for all PSSA Reading, Mathematics and Writing exams. Because of the truncation created by having a lowest obtainable scale score, it is possible for several of the lowest raw scores to convert to a scaled score of 700. Because very few students are in this region of the score distribution (which does not include any cut scores) this policy has minimal effect on the overall score distribution and performance level percentages. More details on the scores can be found in the raw-to-scaled score conversion tables in the appendices.

Figures 1, 2, and 3 show the frequency distributions for fall retest Reading, Mathematics and Writing test scores, respectively. All figures reflect the same information shown in Table 1: generally positively-skewed score distributions with lower test scores occurring with much greater frequency than higher scores. For reference purposes, these plots also illustrate the spring operational frequency distributions against the fall frequency distributions.

Figure 1: Mathematics Operational and Retest Scaled Score Frequency Distribution

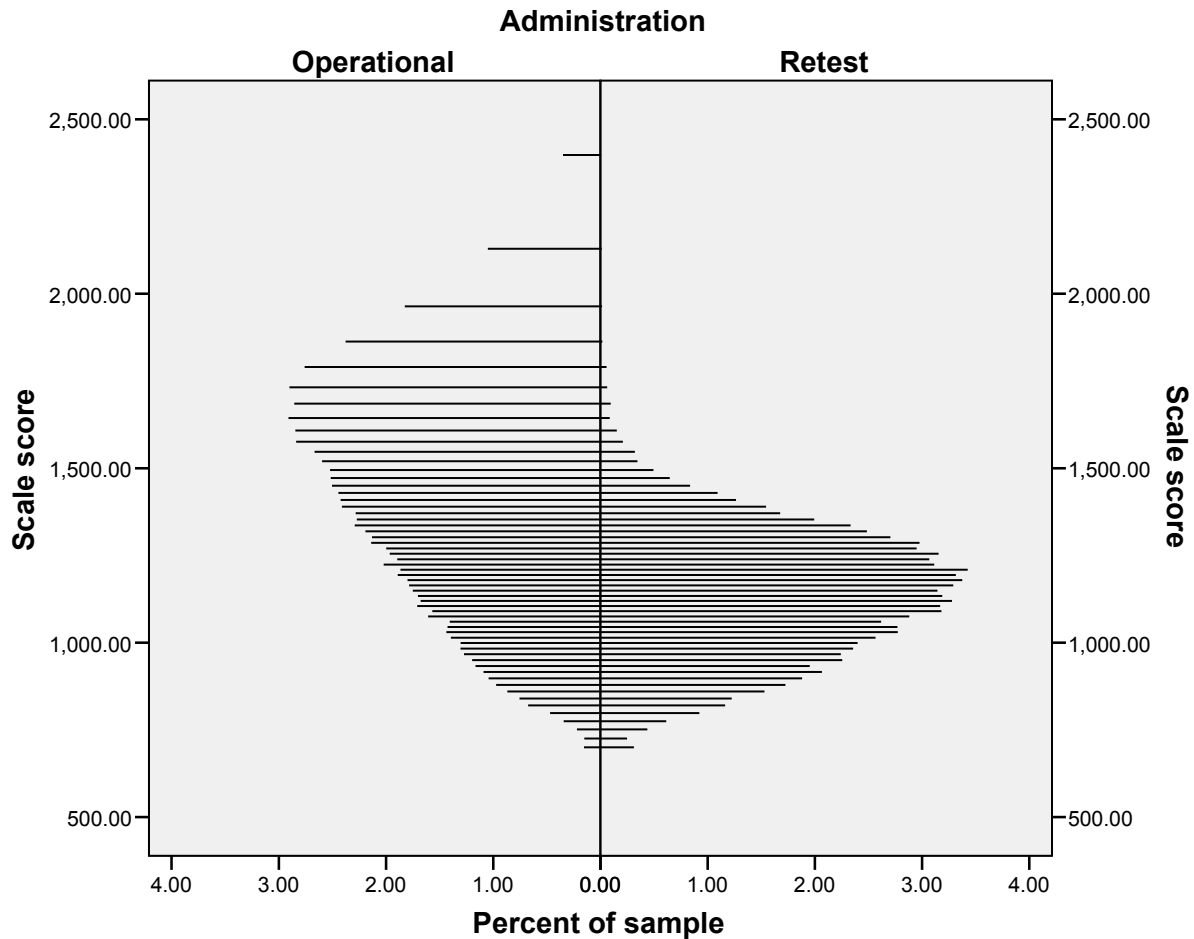


Figure 2: Reading Operational and Retest Scaled Score Frequency Distribution

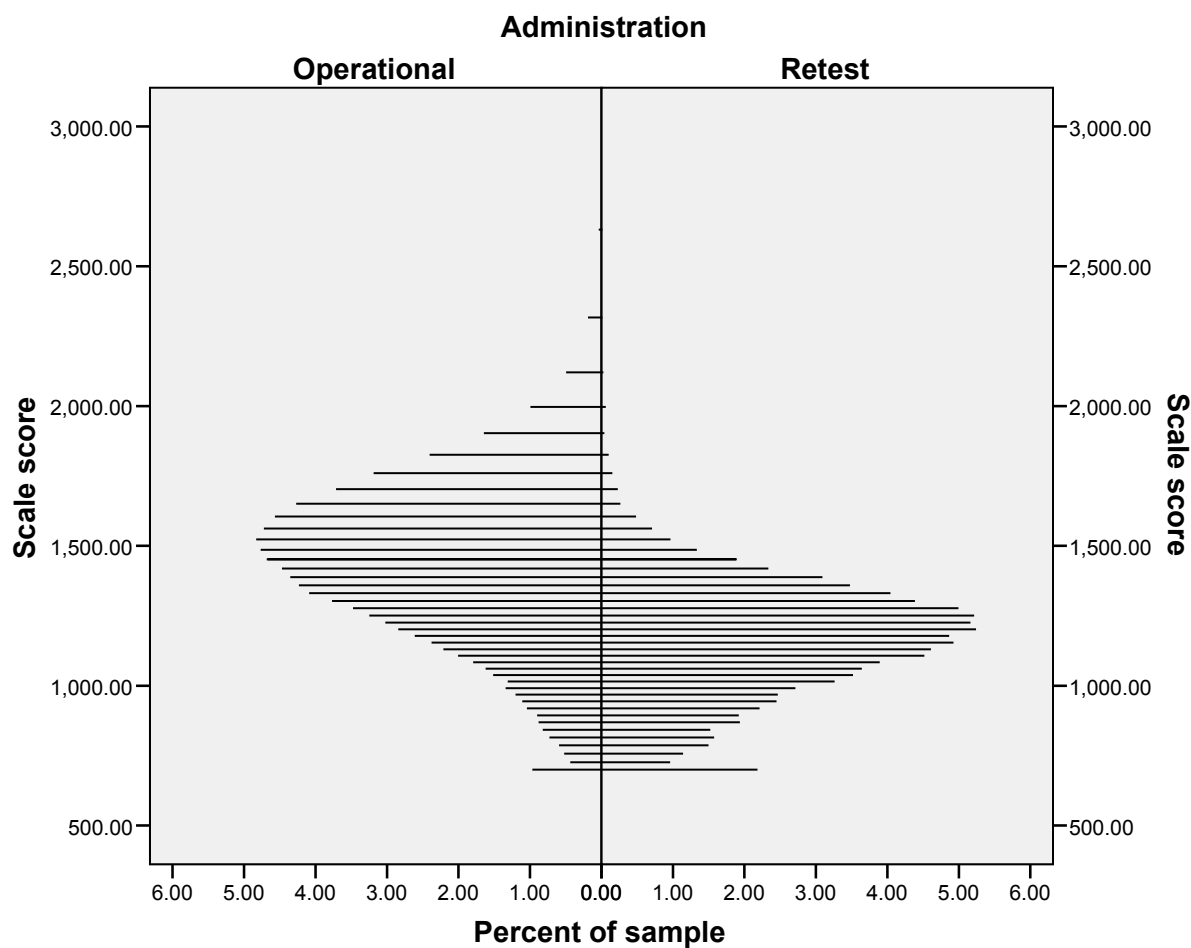
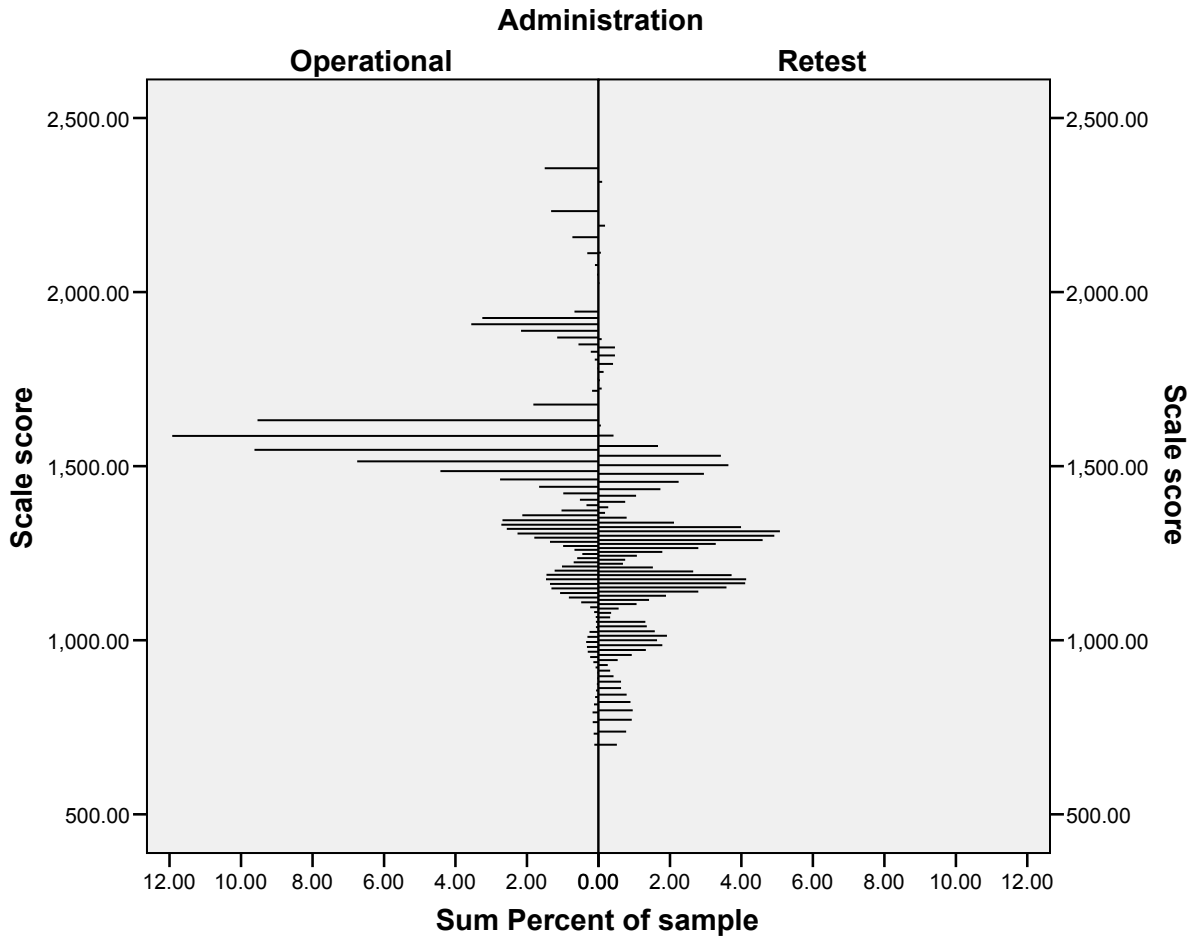


Figure 3: Writing Operational and Retest Scaled Score Frequency Distribution



In Writing both the operational and fall distributions have a ‘roller-coaster’ pattern with a major mode and several minor modes. This pattern likely results from the weighting given to the writing prompts in scoring. This is described in the Spring Technical Report for Writing.

Performance Level Results

In order for scaled scores to be meaningful to the reader, they must be related to some sort of performance standards. The Commonwealth of Pennsylvania has developed four general Performance Level Descriptors, which are described in Table 3.

Table 3: Performance Level Descriptors

Level	Description
Advanced	The Advanced Level reflects superior academic performance. Advanced work indicates an in-depth understanding and exemplary display of the skills included in the Pennsylvania Academic Content Standards.
Proficient	The Proficient Level reflects satisfactory academic performance. Proficient work indicates a solid understanding and adequate display of the skills included in the Pennsylvania Academic Content Standards.
Basic	The Basic Level reflects marginal academic performance. Basic work indicates a partial understanding and limited display of the skills in the Pennsylvania Academic Content Standards. This work is approaching satisfactory performance but has not yet reached it. There is a need for additional instructional opportunities and/or increased student academic commitment to achieve the Proficient Level.
Below Basic	The Below Basic Level reflects inadequate academic performance. Below Basic work indicates little understanding and minimal display of the skills included in the Pennsylvania Academic Content Standards. There is a major need for additional instructional opportunities and/or increased student academic commitment to achieve the Proficient Level.

The scores that correspond with each performance level are located in Table 4. The cumulative percentage of students who achieved a Proficient or Advanced performance level for Mathematics, Reading and Writing are 15.8, 28.5 and 50.9, respectively. The scores indicate that approximately 50%-85% of the students who took the retest still scored in the Basic or Below Basic levels for each subject level.

Table 4: Grade 12 Retest Performance Standards

Mathematics			
Performance Level	Scaled Score	Frequency	Percent in Category
Advanced	1509 and up	461	1.4
Proficient	1304-1508	4798	14.4
Basic	1167-1303	9377	28.1
Below Basic	1166 and below	18762	56.2

Reading			
Performance Level	Scaled Score	Frequency	Percent in Category
Advanced	1492 and up	693	3.0
Proficient	1257-1491	5817	25.5
Basic	1112-1256	6838	30.0
Below Basic	1111 and below	9434	41.4

Writing			
Performance Level	Scaled Score	Frequency	Percent in Category
Advanced	1806 and up	107	1.4
Proficient	1236-1805	3775	49.5
Basic	952-1235	3155	41.4
Below Basic	951 and below	583	7.7

Of the students with scores for both the spring operational and the fall retest administrations, 63.7% of the students remained at the same performance level in Mathematics, while 25.5% transitioned to a higher level and 10.9% regressed to a lower level. (Numbers may not add to 100% exactly due to rounding.) For Reading, 49.9% of the students stayed at the same level, 38.8% improved and 11.3% regressed. For Writing, 44.6% of the students remained at the same level, 49.3% improved and 6.1% regressed.

Writing had the greatest improvement in terms of positive performance level shifts. The Pennsylvania Department of Education previously established the policy that any student with a raw score within 3 points of the minimum required for proficiency should be rescored. The final Writing score for these students would be the higher of the two scorings. The distribution of scaled scores after the rescoring is shown in Figure 3. (Percentages of exact and adjacent agreement from hand scoring can be found in Appendix J.) This scoring policy might account for part of the success of the writing retesters. Additionally, as mentioned earlier, the writing prompt scores are weighted heavier than the MC item scores. Thus, improvement on the weighted portions of the writing test might have further facilitated the retest gains.

Appendix A: 2006 Grade 12 Fall Mathematics Retest Multiple-Choice Item Statistics

Item Description				Proportions							Point Biserials				
Form	Item Sequence	Answer Key	N	P-Value	A	B	C	D	-	*	Item Total Corr	A	B	C	D
ALL	1	A	31276	0.5970	0.5970	0.2526	0.0716	0.0777	0.0011	0.0001	0.3773	0.3773	-0.3308	-0.3728	-0.1925
ALL	2	C	31276	0.6301	0.0736	0.2109	0.6301	0.0832	0.0021	0.0001	0.2404	-0.2105	-0.1940	0.2404	-0.1571
ALL	3	B	31276	0.4242	0.2547	0.4242	0.1996	0.1190	0.0023	0.0002	0.1534	-0.1148	0.1534	-0.1893	-0.1263
ALL	4	B	31276	0.7153	0.1680	0.7153	0.0741	0.0412	0.0011	0.0002	0.2895	-0.2306	0.2895	-0.2125	-0.1825
ALL	5	C	31276	0.4812	0.1209	0.3399	0.4812	0.0496	0.0082	0.0003	0.3106	-0.2102	-0.3348	0.3106	-0.1581
ALL	6	B	31276	0.5213	0.3430	0.5213	0.0878	0.0415	0.0061	0.0002	0.2825	-0.2533	0.2825	-0.2812	-0.1278
ALL	7	D	31276	0.2113	0.0934	0.2961	0.3964	0.2113	0.0025	0.0003	0.2408	-0.3857	-0.4133	-0.1571	0.2408
ALL	8	C	31276	0.5214	0.1548	0.1743	0.5214	0.1478	0.0014	0.0003	0.1541	-0.1592	-0.1380	0.1541	-0.0931
ALL	9	C	31276	0.3805	0.0730	0.4741	0.3805	0.0710	0.0013	0.0002	0.2541	-0.2649	-0.2237	0.2541	-0.2972
ALL	10	A	31276	0.6124	0.6124	0.1207	0.2346	0.0308	0.0012	0.0003	0.3274	0.3274	-0.1193	-0.3541	-0.2876
ALL	11	D	31276	0.2396	0.2207	0.2462	0.2859	0.2396	0.0070	0.0005	0.2048	-0.2832	-0.2575	-0.1768	0.2048
ALL	12	C	31276	0.6653	0.1043	0.1127	0.6653	0.1136	0.0038	0.0003	0.3784	-0.2946	-0.3109	0.3784	-0.2547
ALL	13	A	31276	0.8932	0.8932	0.0606	0.0240	0.0210	0.0009	0.0003	0.3114	0.3114	-0.2101	-0.1940	-0.1954
ALL	14	B	31276	0.5945	0.0814	0.5945	0.2195	0.0992	0.0050	0.0003	0.3346	-0.2341	0.3346	-0.2789	-0.2820
ALL	15	D	31276	0.7542	0.0724	0.0957	0.0752	0.7542	0.0023	0.0003	0.3687	-0.2325	-0.2893	-0.2529	0.3687
ALL	16	B	31276	0.5178	0.1211	0.5178	0.0482	0.3109	0.0014	0.0005	0.2858	-0.4110	0.2858	-0.3249	-0.1443
ALL	17	C	31276	0.5280	0.1073	0.1944	0.5280	0.1640	0.0060	0.0003	0.2400	-0.2132	-0.2296	0.2400	-0.1656
ALL	18	B	31276	0.6294	0.1313	0.6294	0.1643	0.0718	0.0029	0.0003	0.2662	-0.2406	0.2662	-0.2007	-0.1664
ALL	19	A	31276	0.2814	0.2814	0.2114	0.2534	0.2468	0.0064	0.0006	0.1734	0.1734	-0.1482	-0.2249	-0.1827
ALL	20	C	31276	0.3722	0.1920	0.2089	0.3722	0.2143	0.0122	0.0004	0.1039	-0.1397	-0.1525	0.1039	-0.0257
ALL	21	B	31276	0.4224	0.2234	0.4224	0.1777	0.1715	0.0047	0.0003	0.2389	-0.1833	0.2389	-0.2483	-0.2359
ALL	22	B	31276	0.7432	0.1330	0.7432	0.0828	0.0352	0.0056	0.0003	0.3056	-0.1736	0.3056	-0.2709	-0.2428
ALL	25	C	31276	0.6211	0.1728	0.1326	0.6211	0.0704	0.0028	0.0002	0.2661	-0.2110	-0.2614	0.2661	-0.1228
ALL	26	C	31276	0.3543	0.2793	0.3151	0.3543	0.0474	0.0035	0.0004	0.3131	-0.3593	-0.3022	0.3131	-0.1515
ALL	27	B	31276	0.5075	0.1636	0.5075	0.2314	0.0943	0.0029	0.0004	0.2715	-0.1231	0.2715	-0.3122	-0.2383
ALL	28	C	31276	0.6088	0.0417	0.2094	0.6088	0.1345	0.0051	0.0004	0.2583	-0.2242	-0.1723	0.2583	-0.2539
ALL	29	C	31276	0.5339	0.1749	0.2243	0.5339	0.0649	0.0017	0.0003	0.3433	-0.3253	-0.2958	0.3433	-0.2330
ALL	30	A	31276	0.4661	0.4661	0.1250	0.1912	0.2145	0.0027	0.0004	0.3179	0.3179	-0.2601	-0.3463	-0.2433
ALL	31	A	31276	0.6643	0.6643	0.1430	0.1227	0.0671	0.0025	0.0004	0.3249	0.3249	-0.2908	-0.2407	-0.1933
ALL	32	D	31276	0.3564	0.1347	0.2678	0.2345	0.3564	0.0061	0.0005	0.2343	-0.2696	-0.2234	-0.2248	0.2343
ALL	33	A	31276	0.3525	0.3525	0.3144	0.2227	0.1037	0.0061	0.0007	0.2897	0.2897	-0.3086	-0.2718	-0.2579
ALL	34	B	31276	0.3343	0.5066	0.3343	0.0974	0.0576	0.0035	0.0005	0.1832	-0.1164	0.1832	-0.3445	-0.2871
ALL	35	A	31276	0.6425	0.6425	0.1025	0.1404	0.1102	0.0041	0.0004	0.3460	0.3460	-0.2780	-0.2684	-0.2479
ALL	36	A	31276	0.5700	0.5700	0.1161	0.2166	0.0919	0.0049	0.0005	0.3170	0.3170	-0.2989	-0.2271	-0.2675
ALL	37	C	31276	0.7466	0.0660	0.1064	0.7466	0.0772	0.0033	0.0005	0.4413	-0.3116	-0.3078	0.4413	-0.3277
ALL	38	D	31276	0.3204	0.1590	0.3428	0.1697	0.3204	0.0075	0.0007	0.2713	-0.2949	-0.2500	-0.3106	0.2713
ALL	39	A	31276	0.6562	0.6562	0.1604	0.0949	0.0836	0.0045	0.0005	0.4084	0.4084	-0.2907	-0.3514	-0.3014
ALL	40	A	31276	0.6690	0.6690	0.1562	0.1093	0.0587	0.0065	0.0004	0.2859	0.2859	-0.1879	-0.2282	-0.2325
ALL	41	C	31276	0.4278	0.0913	0.1211	0.4278	0.3546	0.0050	0.0003	0.3729	-0.4109	-0.3965	0.3729	-0.3070
ALL	42	B	31276	0.5738	0.1595	0.5738	0.1993	0.0606	0.0065	0.0002	0.3081	-0.2113	0.3081	-0.2940	-0.2208
ALL	43	D	31276	0.6192	0.0412	0.2574	0.0767	0.6192	0.0049	0.0006	0.3498	-0.3212	-0.2381	-0.3510	0.3498
ALL	44	A	31276	0.5029	0.5029	0.1520	0.1352	0.2015	0.0078	0.0006	0.2875	0.2875	-0.2415	-0.2368	-0.2597
ALL	45	B	31276	0.2545	0.4199	0.2545	0.2167	0.1000	0.0084	0.0004	0.1120	-0.0669	0.1120	-0.1839	-0.1662

2006 PSSA Grade 12 Retest Technical Report for Mathematics, Reading, and Writing

Item Description				Proportions							Point Biserials				
Form	Item Sequence	Answer Key	N	P-Value	A	B	C	D	-	*	Item Total Corr	A	B	C	D
ALL	46	A	31276	0.5466	0.5466	0.2036	0.1622	0.0806	0.0066	0.0004	0.3845	0.3845	-0.3538	-0.3163	-0.2760
ALL	47	D	31276	0.4539	0.0940	0.1880	0.2560	0.4539	0.0075	0.0005	0.4464	-0.4740	-0.4455	-0.3456	0.4464
ALL	48	D	31276	0.4969	0.1897	0.1325	0.1742	0.4969	0.0064	0.0003	0.2801	-0.2080	-0.3397	-0.1934	0.2801
ALL	49	C	31276	0.6054	0.1245	0.1346	0.6054	0.1287	0.0065	0.0004	0.3197	-0.1392	-0.3390	0.3197	-0.2611
ALL	50	B	31276	0.4365	0.2141	0.4365	0.2155	0.1221	0.0112	0.0005	0.1945	-0.1256	0.1945	-0.2027	-0.2018
ALL	51	B	31276	0.7530	0.0737	0.7530	0.1129	0.0523	0.0078	0.0003	0.4734	-0.3259	0.4734	-0.3641	-0.3028
ALL	52	C	31276	0.5601	0.2577	0.1091	0.5601	0.0651	0.0077	0.0003	0.3232	-0.2396	-0.2737	0.3232	-0.3141
ALL	53	D	31276	0.7600	0.0530	0.0724	0.1063	0.7600	0.0076	0.0006	0.4236	-0.3099	-0.3182	-0.2706	0.4236
ALL	54	D	31276	0.4394	0.1848	0.2044	0.1624	0.4394	0.0085	0.0006	0.4216	-0.3580	-0.4023	-0.4012	0.4216
ALL	55	A	31276	0.8132	0.8132	0.0800	0.0581	0.0402	0.0080	0.0005	0.3660	0.3660	-0.2429	-0.2522	-0.2253
ALL	56	B	31276	0.3881	0.1873	0.3881	0.2820	0.1304	0.0120	0.0002	0.1978	-0.2044	0.1978	-0.1660	-0.1970

NOTE: "-" denotes omits; "***" denotes multiple marks.

Appendix B: 2006 Grade 12 Fall Mathematics Retest Multiple-Choice Calibration Data

Item Sequence	Anchored Logit Difficulty	SEM	InFit		OutFit	
			MS	ZSTD	MS	ZSTD
1	-0.682	0.012	0.94	-9.90	0.93	-9.90
2	-0.606	0.012	1.03	7.40	1.04	6.80
3	0.563	0.013	1.31	9.90	1.46	9.90
4	-1.135	0.013	0.94	-9.90	0.94	-7.30
5	-0.090	0.012	1.01	2.30	1.02	3.30
6	-0.410	0.012	1.03	7.90	1.04	7.20
7	1.175	0.014	1.01	1.00	1.07	5.40
8	0.068	0.012	1.20	9.90	1.27	9.90
9	0.186	0.012	1.03	6.40	1.05	8.50
10	-0.733	0.012	0.97	-6.70	0.98	-3.40
11	1.079	0.014	1.08	9.90	1.20	9.90
12	-1.152	0.013	0.97	-6.40	0.94	-7.80
13	-2.531	0.018	0.85	-9.90	0.74	-9.90
14	-0.747	0.012	0.99	-2.50	0.98	-3.70
15	-1.621	0.014	0.97	-4.70	0.90	-9.30
16	-0.379	0.012	1.03	6.90	1.03	5.70
17	-0.290	0.012	1.07	9.90	1.08	9.90
18	-0.852	0.012	1.03	6.30	1.03	4.20
19	0.794	0.013	1.09	9.90	1.21	9.90
20	0.810	0.013	1.38	9.90	1.62	9.90
21	0.244	0.012	1.09	9.90	1.15	9.90
22	-1.407	0.013	0.95	-8.60	0.95	-5.00
25	-0.940	0.012	1.06	9.90	1.08	9.90
26	0.307	0.012	0.97	-6.80	1.00	0.10
27	-0.342	0.012	1.04	9.90	1.05	9.20
28	-0.833	0.012	1.05	9.90	1.06	9.80
29	-0.291	0.012	0.98	-5.00	0.98	-3.20
30	-0.330	0.012	1.01	2.10	1.01	1.60
31	-1.084	0.013	0.99	-2.80	1.00	0.30
32	0.432	0.013	1.07	9.90	1.12	9.90
33	0.243	0.012	0.98	-5.10	1.00	0.80
34	0.548	0.013	1.10	9.90	1.21	9.90
35	-1.311	0.013	1.11	9.90	1.11	9.90
36	-0.836	0.012	1.04	9.40	1.05	8.10
37	-1.834	0.015	1.06	7.30	0.95	-4.20
38	0.282	0.012	0.97	-6.20	0.98	-2.70
39	-1.290	0.013	1.02	3.30	1.00	-0.50
40	-1.002	0.013	0.99	-2.00	0.97	-4.10
41	-0.041	0.012	0.94	-9.90	0.93	-9.90
42	-0.698	0.012	1.02	4.00	1.01	2.10
43	-0.872	0.012	0.97	-5.70	0.98	-2.80
44	-0.543	0.012	1.05	9.90	1.05	9.50
45	1.062	0.014	1.18	9.90	1.45	9.90
46	-0.559	0.012	0.95	-9.90	0.94	-9.90
47	-0.429	0.012	0.91	-9.90	0.89	-9.90
48	-0.189	0.012	1.04	8.90	1.05	8.70
49	-0.979	0.012	1.05	9.10	1.06	8.10
50	0.097	0.012	1.11	9.90	1.16	9.90
51	-1.911	0.015	1.07	7.40	0.91	-6.50
52	-0.453	0.012	0.99	-2.80	0.99	-1.40
53	-1.884	0.015	1.05	5.50	0.97	-2.30

Item Sequence	Anchored Logit Difficulty	SEM	InFit		OutFit	
			MS	ZSTD	MS	ZSTD
54	-0.496	0.012	0.96	-9.20	0.95	-9.40
55	-2.151	0.016	1.05	4.80	0.96	-2.80
56	0.129	0.012	1.08	9.90	1.11	9.90

Appendix C: 2006 Grade 12 Fall Mathematics Retest Constructed-Response Item Statistics

Item Description				Proportions										Point Biserials					
Form	Item Sequence	Max Score Points	N	P-Value	0	1	2	3	4	B	F	K	U	Item Total Corr	0	1	2	3	4
ALL	23	4	31276	0.1561	0.5286	0.2441	0.1155	0.0452	0.0034	0.0631	0.0000	0.0001	0.0000	0.5096	-0.4652	-0.4230	-0.2731	-0.0922	0.0922
ALL	24	4	31276	0.5126	0.0241	0.2841	0.1963	0.3953	0.0469	0.0532	0.0000	0.0001	0.0000	0.5874	-0.2914	-0.5403	-0.5052	-0.2275	0.2275
ALL	57	4	31276	0.5025	0.0687	0.1961	0.3703	0.1701	0.1408	0.0539	0.0000	0.0001	0.0000	0.5089	-0.3736	-0.4429	-0.3927	-0.2752	0.2752

NOTE: B = blank; F = foreign language; K = off task; U = unreadable.

Appendix D: 2006 Grade 12 Fall Reading Retest Multiple-Choice Item Statistics

Item Description				Proportions							Point Biserals				
Form	Item Sequence	Answer Key	N	P-Value	A	B	C	D	-	*	Item Total Corr	A	B	C	D
ALL	1	C	21255	0.8346	0.0318	0.0921	0.8346	0.0397	0.0016	0.0002	0.3249	-0.2420	-0.2713	0.3249	-0.1228
ALL	2	B	21255	0.6065	0.0924	0.6065	0.2066	0.0931	0.0014	0.0001	0.2514	-0.2540	0.2514	-0.1633	-0.2051
ALL	3	A	21255	0.6100	0.6100	0.0773	0.2446	0.0667	0.0009	0.0005	0.2698	0.2698	-0.2909	-0.1804	-0.2255
ALL	4	C	21255	0.5988	0.1365	0.0892	0.5988	0.1724	0.0028	0.0003	0.3600	-0.2758	-0.3042	0.3600	-0.2950
ALL	5	B	21255	0.5377	0.1753	0.5377	0.0964	0.1876	0.0026	0.0003	0.3044	-0.1880	0.3044	-0.3731	-0.2534
ALL	6	C	21255	0.5288	0.1082	0.1584	0.5288	0.2010	0.0032	0.0004	0.2850	-0.2199	-0.2954	0.2850	-0.2172
ALL	7	D	21255	0.4900	0.1020	0.1174	0.2877	0.4900	0.0025	0.0004	0.2681	-0.3656	-0.2848	-0.1578	0.2681
ALL	8	B	21255	0.7327	0.0646	0.7327	0.0502	0.1502	0.0022	0.0001	0.3376	-0.3047	0.3376	-0.2948	-0.1968
ALL	10	C	21255	0.6352	0.0865	0.1950	0.6352	0.0813	0.0016	0.0003	0.3251	-0.3029	-0.2484	0.3251	-0.2226
ALL	11	B	21255	0.4640	0.0949	0.4640	0.1706	0.2671	0.0031	0.0002	0.2535	-0.3241	0.2535	-0.2810	-0.1482
ALL	12	B	21255	0.4403	0.1633	0.4403	0.1260	0.2673	0.0028	0.0004	0.2411	-0.1955	0.2411	-0.2406	-0.2244
ALL	13	B	21255	0.6669	0.1878	0.6669	0.0871	0.0560	0.0018	0.0003	0.3263	-0.2174	0.3263	-0.2932	-0.2693
ALL	14	C	21255	0.5907	0.0662	0.2749	0.5907	0.0655	0.0024	0.0004	0.1527	-0.1734	-0.1013	0.1527	-0.1357
ALL	15	B	21255	0.3555	0.4107	0.3555	0.0745	0.1560	0.0027	0.0006	0.1882	-0.1688	0.1882	-0.3070	-0.1511
ALL	16	C	21255	0.4893	0.1214	0.1053	0.4893	0.2796	0.0038	0.0007	0.2707	-0.2154	-0.3327	0.2707	-0.2030
ALL	17	A	21255	0.6537	0.6537	0.1839	0.0767	0.0816	0.0038	0.0003	0.3054	0.3054	-0.1711	-0.3449	-0.2430
ALL	18	D	21255	0.4069	0.2855	0.1496	0.1510	0.4069	0.0068	0.0003	0.3128	-0.2431	-0.3600	-0.3314	0.3128
ALL	19	C	21255	0.4391	0.0693	0.2105	0.4391	0.2751	0.0056	0.0003	0.2359	-0.2642	-0.2456	0.2359	-0.1697
ALL	20	C	21255	0.5367	0.2398	0.1088	0.5367	0.1082	0.0061	0.0003	0.2773	-0.1933	-0.3256	0.2773	-0.2027
ALL	21	B	21255	0.2141	0.2961	0.2141	0.2794	0.2036	0.0061	0.0007	0.0014	-0.0285	0.0014	0.0050	0.0419
ALL	22	A	21255	0.2412	0.2412	0.0884	0.2596	0.4038	0.0065	0.0006	0.0431	0.0431	-0.2611	-0.0796	0.0369
ALL	23	D	21255	0.2813	0.1396	0.3743	0.1941	0.2813	0.0098	0.0008	0.2172	-0.3181	-0.1481	-0.3102	0.2172
ALL	24	A	21255	0.5365	0.5365	0.1194	0.0813	0.2527	0.0093	0.0008	0.1878	0.1878	-0.2510	-0.2908	-0.0394
ALL	25	C	21255	0.3606	0.1880	0.1595	0.3606	0.2818	0.0095	0.0006	0.2153	-0.2451	-0.2872	0.2153	-0.1374
ALL	27	C	21255	0.9004	0.0236	0.0470	0.9004	0.0284	0.0003	0.0003	0.3563	-0.2662	-0.2366	0.3563	-0.1900
ALL	28	B	21255	0.7631	0.0489	0.7631	0.1632	0.0240	0.0005	0.0003	0.2503	-0.1626	0.2503	-0.1888	-0.2028
ALL	29	C	21255	0.6737	0.0679	0.1385	0.6737	0.1186	0.0009	0.0004	0.1775	-0.1608	-0.1121	0.1775	-0.1368
ALL	30	D	21255	0.5343	0.2393	0.1304	0.0942	0.5343	0.0009	0.0009	0.2005	-0.1423	-0.1726	-0.2270	0.2005
ALL	31	B	21255	0.8006	0.0744	0.8006	0.0283	0.0947	0.0015	0.0005	0.3450	-0.2082	0.3450	-0.2810	-0.2537
ALL	32	C	21255	0.5757	0.1247	0.2590	0.5757	0.0382	0.0021	0.0004	0.1449	-0.2354	-0.0457	0.1449	-0.1472
ALL	33	A	21255	0.3450	0.3450	0.2527	0.2203	0.1791	0.0024	0.0006	0.1885	0.1885	-0.1863	-0.2095	-0.1715
ALL	34	C	21255	0.7929	0.0573	0.0462	0.7929	0.1011	0.0022	0.0003	0.3335	-0.3068	-0.2714	0.3335	-0.1578
ALL	36	C	21255	0.5389	0.3032	0.1095	0.5389	0.0406	0.0074	0.0004	0.2710	-0.2084	-0.2862	0.2710	-0.2015

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Item Description				Proportions							Point Biserials				
Form	Item Sequence	Answer Key	N	P-Value	A	B	C	D	-	*	Item Total Corr	A	B	C	D
ALL	37	D	21255	0.6435	0.0846	0.0771	0.1874	0.6435	0.0067	0.0007	0.3532	-0.2444	-0.3809	-0.2329	0.3532
ALL	38	B	21255	0.6359	0.0908	0.6359	0.1135	0.1503	0.0086	0.0009	0.2762	-0.2510	0.2762	-0.2882	-0.1138
ALL	39	D	21255	0.3900	0.3560	0.1277	0.1176	0.3900	0.0077	0.0010	0.2696	-0.2279	-0.2633	-0.3072	0.2696
ALL	40	A	21255	0.6870	0.6870	0.1033	0.1236	0.0775	0.0076	0.0008	0.4404	0.4404	-0.3344	-0.3411	-0.3163
ALL	41	C	21255	0.5633	0.0658	0.0815	0.5633	0.2806	0.0077	0.0011	0.2515	-0.3566	-0.3559	0.2515	-0.0865
ALL	42	C	21255	0.4321	0.2037	0.2097	0.4321	0.1456	0.0081	0.0008	0.2634	-0.2369	-0.2556	0.2634	-0.2216
ALL	43	A	21255	0.5487	0.5487	0.1893	0.1600	0.0933	0.0081	0.0006	0.2858	0.2858	-0.2200	-0.2472	-0.2449

NOTE: "-" denotes omits; "***" denotes multiple marks.

Appendix E: 2006 Grade 12 Fall Reading Retest Multiple-Choice Calibration Data

Item Sequence	Anchored Logit Difficulty	SEM	InFit		OutFit	
			MS	ZSTD	MS	ZSTD
1	-1.646	0.019	0.93	-6.30	0.87	-7.50
2	-0.377	0.015	1.05	9.20	1.05	6.90
3	-0.226	0.015	1.00	0.10	1.00	-0.30
4	-0.442	0.015	0.99	-1.60	0.97	-4.10
5	-0.145	0.015	1.01	2.60	1.01	2.00
6	-0.009	0.014	1.02	3.20	1.02	3.00
7	0.285	0.014	1.03	6.00	1.04	6.10
8	-0.968	0.016	0.94	-7.60	0.93	-6.30
10	-0.489	0.015	0.98	-3.20	0.97	-3.40
11	0.324	0.014	1.03	7.20	1.05	8.20
12	0.414	0.014	1.04	7.50	1.07	9.90
13	-0.711	0.015	1.00	-0.10	0.99	-1.40
14	0.303	0.014	1.15	9.90	1.21	9.90
15	0.832	0.015	1.07	9.90	1.14	9.90
16	0.087	0.014	1.03	5.50	1.04	5.50
17	-0.442	0.015	0.96	-7.60	0.95	-5.90
18	0.443	0.014	0.96	-7.90	0.97	-4.90
19	0.307	0.014	1.05	9.90	1.08	9.90
20	0.074	0.014	1.01	2.90	1.02	3.40
21	2.155	0.020	1.61	9.90	2.44	9.90
22	1.894	0.019	1.46	9.90	2.01	9.90
23	1.039	0.015	0.97	-4.10	1.05	4.40
24	0.494	0.015	1.16	9.90	1.22	9.90
25	0.841	0.015	1.05	8.40	1.12	9.90
27	-2.349	0.024	0.93	-3.60	0.74	-9.90
28	-1.052	0.016	0.97	-3.60	0.98	-1.30
29	-0.341	0.015	1.04	6.40	1.05	7.00
30	0.201	0.014	1.08	9.90	1.10	9.90
31	-1.450	0.018	0.95	-4.30	0.91	-5.50
32	0.232	0.014	1.14	9.90	1.18	9.90
33	0.821	0.015	1.06	9.60	1.13	9.90
34	-1.176	0.017	0.86	-9.90	0.85	-9.90
36	-0.147	0.015	1.02	4.10	1.02	3.10
37	-0.840	0.016	1.06	8.50	1.07	6.10
38	-0.659	0.015	1.06	8.40	1.07	7.00
39	0.240	0.014	1.00	0.50	1.01	0.80
40	-1.189	0.017	1.11	9.90	1.03	2.40
41	-0.129	0.015	1.04	7.20	1.05	6.90
42	0.216	0.014	1.00	0.10	1.01	2.20
43	-0.197	0.015	1.02	3.20	1.02	2.80

Appendix F: 2006 Grade 12 Fall Reading Retest Constructed-Response Item Statistics

Item Description				Proportions									Point Biserials				
Form	Item Sequence	Max Score Points	N	P-Value	0	1	2	3	B	F	K	U	Item Total Corr	0	1	2	3
ALL	9	3	21255	0.4720	0.1109	0.3505	0.4122	0.0804	0.0432	0.0000	0.0025	0.0003	0.5806	-0.4808	-0.5019	-0.2430	0.2430
ALL	26	3	21255	0.4512	0.1095	0.2860	0.4646	0.0462	0.0797	0.0000	0.0139	0.0002	0.5832	-0.5082	-0.5054	-0.1920	0.1920
ALL	35	3	21255	0.3975	0.0558	0.5824	0.2763	0.0191	0.0604	0.0000	0.0059	0.0000	0.4299	-0.3899	-0.3079	-0.1194	0.1194
ALL	44	3	21255	0.5176	0.0335	0.3432	0.4938	0.0740	0.0542	0.0000	0.0009	0.0002	0.4901	-0.3759	-0.4234	-0.2072	0.2072

NOTE: B = blank; F = foreign language; K = off task; U = unreadable.

Appendix G: 2006 Grade 12 Fall Writing Retest Multiple-Choice Item Statistics

Item Description				Proportions							Point Biserials				
Form	Item Sequence	Answer Key	N	P-Value	A	B	C	D	-	*	Item Total Corr	A	B	C	D
ALL	1	A	6999	0.7091	0.7091	0.1026	0.0490	0.1382	0.0011	0.0000	0.2693	0.2693	-0.2719	-0.1937	-0.1428
ALL	2	A	6999	0.9177	0.9177	0.0160	0.0457	0.0199	0.0007	0.0000	0.2955	0.2955	-0.1788	-0.1969	-0.1871
ALL	3	A	6999	0.6698	0.6698	0.1234	0.0419	0.1613	0.0036	0.0000	0.3147	0.3147	-0.2531	-0.1598	-0.2735
ALL	4	C	6999	0.8858	0.0197	0.0587	0.8858	0.0347	0.0010	0.0000	0.3833	-0.2281	-0.2970	0.3833	-0.2147
ALL	5	A	6999	0.5571	0.5571	0.0519	0.2052	0.1836	0.0023	0.0000	0.2365	0.2365	-0.3270	-0.2133	-0.1276
ALL	6	C	6999	0.3150	0.1492	0.4448	0.3150	0.0883	0.0027	0.0000	0.1543	-0.2080	-0.1060	0.1543	-0.2841
ALL	7	B	6999	0.6591	0.1383	0.6591	0.0713	0.1266	0.0047	0.0000	0.3865	-0.2693	0.3865	-0.3394	-0.3273
ALL	8	B	6999	0.7901	0.1296	0.7901	0.0466	0.0314	0.0023	0.0000	0.3421	-0.2728	0.3421	-0.2513	-0.1835
ALL	9	C	6999	0.7318	0.1314	0.1007	0.7318	0.0347	0.0011	0.0001	0.4212	-0.3012	-0.3962	0.4212	-0.2104
ALL	10	A	6999	0.4724	0.4724	0.3015	0.1689	0.0562	0.0011	0.0000	0.3473	0.3473	-0.3518	-0.3448	-0.1622
ALL	11	C	6999	0.7540	0.0639	0.1179	0.7540	0.0629	0.0014	0.0000	0.4170	-0.3028	-0.3193	0.4170	-0.2983
ALL	12	D	6999	0.7284	0.1312	0.0354	0.1036	0.7284	0.0014	0.0000	0.3555	-0.2728	-0.3070	-0.2436	0.3555

NOTE: "-" denotes omits; "*" denotes multiple marks.

Appendix H: 2006 Grade 12 Fall Writing Retest Multiple-Choice Calibration Data

Item Sequence	Anchored Logit Difficulty	SEM	InFit		OutFit	
			MS	ZSTD	MS	ZSTD
1	-1.104	0.031	1.40	9.90	4.23	9.90
2	-0.924	0.030	1.23	9.90	2.10	7.50
3	0.418	0.030	1.87	9.90	6.22	9.90
4	1.188	0.033	3.58	9.90	9.90	9.90
5	0.900	0.032	2.13	9.90	8.96	9.90
6	2.115	0.038	2.52	9.90	9.90	9.90
7	-0.178	0.029	1.43	9.90	2.53	9.90
8	-1.357	0.032	1.23	9.90	2.19	6.40
9	-0.690	0.030	1.24	9.90	3.81	9.90
10	0.873	0.031	1.80	9.90	4.97	9.90
11	-0.920	0.030	1.17	9.90	2.58	9.90
12	-0.322	0.029	1.45	9.90	2.98	9.90

Appendix I: 2006 Grade 12 Fall Writing Retest Constructed-Response Item Statistics

Item Description				Proportions								Point Biserials				
Form	Item Sequence	Max Score Points	N	P-Value	1	2	3	4	B	N	T	Item Total Corr	1	2	3	4
ALL	13	4	6999	0.6071	0.0912	0.4083	0.4814	0.0191	0.0000	0.0000	0.0000	0.6246	-0.4197	-0.5473	-0.2314	0.2314
ALL	13	4	6999	0.5827	0.0909	0.5136	0.3695	0.0260	0.0000	0.0000	0.0000	0.7376	-0.5388	-0.6107	-0.2771	0.2771
ALL	14	4	6999	0.5161	0.1845	0.5752	0.2316	0.0087	0.0000	0.0000	0.0000	0.6257	-0.5428	-0.4512	-0.1604	0.1604
ALL	14	4	6999	0.5145	0.1735	0.6064	0.2089	0.0113	0.0000	0.0000	0.0000	0.7485	-0.6335	-0.5413	-0.2204	0.2204

NOTE: B = blank; N = non-score; T = off-topic

Appendix J: 2006 Grade 12 Fall Writing Retest Percentage Agreement

Prompt	Composition			Revising & Editing		
	% Exact Agreement	% Adjacent Agreement	% Exact + Adjacent	% Exact Agreement	% Adjacent Agreement	% Exact + Adjacent
1	84	16	100	80	20	100
2	81	18	99	80	20	100

Appendix K: 2006 Grade 12 Fall Mathematics Retest Raw-to-Scaled Score Conversion Table

Raw Score	Measure	Scale Score	Logit SE	Scale Score SE	Freq	Freq %	Cum Freq	Cum Freq %	Percentile
0	-6.1241	700	1.8345	379	0	0.0	0	0.0	0
1	-4.8979	700	1.0157	210	0	0.0	0	0.0	0
2	-4.1732	700	0.7289	150	1	0.0	1	0.0	1
3	-3.7365	700	0.6037	125	0	0.0	1	0.0	1
4	-3.4178	700	0.5300	109	1	0.0	2	0.0	1
5	-3.1638	700	0.4804	99	1	0.0	3	0.0	1
6	-2.9508	700	0.4442	92	7	0.0	10	0.0	1
7	-2.7660	700	0.4165	86	13	0.0	23	0.1	1
8	-2.6019	700	0.3944	81	14	0.0	37	0.1	1
9	-2.4535	700	0.3764	78	48	0.2	85	0.3	1
10	-2.3176	725	0.3615	75	71	0.2	156	0.5	1
11	-2.1916	751	0.3488	72	122	0.4	278	0.9	1
12	-2.0737	776	0.3380	70	174	0.6	452	1.4	1
13	-1.9627	799	0.3286	68	272	0.9	724	2.3	2
14	-1.8575	820	0.3204	66	326	1.0	1050	3.4	3
15	-1.7571	841	0.3133	65	361	1.2	1411	4.5	4
16	-1.6609	861	0.3070	63	451	1.4	1862	6.0	5
17	-1.5684	880	0.3014	62	504	1.6	2366	7.6	7
18	-1.4790	898	0.2965	61	579	1.9	2945	9.4	8
19	-1.3925	916	0.2921	60	634	2.0	3579	11.4	10
20	-1.3083	933	0.2882	59	601	1.9	4180	13.4	12
21	-1.2262	950	0.2848	59	700	2.2	4880	15.6	14
22	-1.1461	967	0.2817	58	680	2.2	5560	17.8	17
23	-1.0674	983	0.2790	58	729	2.3	6289	20.1	19
24	-0.9903	999	0.2766	57	737	2.4	7026	22.5	21
25	-0.9144	1015	0.2745	57	793	2.5	7819	25.0	24
26	-0.8395	1030	0.2727	56	852	2.7	8671	27.7	26
27	-0.7656	1045	0.2712	56	863	2.8	9534	30.5	29
28	-0.6923	1060	0.2700	56	819	2.6	10353	33.1	32
29	-0.6197	1075	0.2690	56	890	2.8	11243	35.9	35
30	-0.5476	1090	0.2682	55	1000	3.2	12243	39.1	38
31	-0.4758	1105	0.2676	55	1000	3.2	13243	42.3	41
32	-0.4043	1120	0.2673	55	1044	3.3	14287	45.7	44
33	-0.3328	1134	0.2672	55	1005	3.2	15292	48.9	47
34	-0.2614	1149	0.2674	55	978	3.1	16270	52.0	50
35	-0.1898	1164	0.2677	55	1040	3.3	17310	55.3	54
36	-0.1180	1179	0.2683	55	1071	3.4	18381	58.8	57
37	-0.0458	1194	0.2691	56	1056	3.4	19437	62.1	60
38	0.0269	1209	0.2702	56	1092	3.5	20529	65.6	64
39	0.1002	1224	0.2715	56	992	3.2	21521	68.8	67
40	0.1744	1239	0.2730	56	978	3.1	22499	71.9	70
41	0.2494	1255	0.2748	57	994	3.2	23493	75.1	74
42	0.3255	1270	0.2769	57	930	3.0	24423	78.1	77
43	0.4028	1286	0.2793	58	960	3.1	25383	81.2	80
44	0.4816	1303	0.2820	58	870	2.8	26253	83.9	83
45	0.5619	1319	0.2850	59	791	2.5	27044	86.5	85
46	0.6441	1336	0.2885	60	736	2.4	27780	88.8	88
47	0.7285	1354	0.2925	60	641	2.0	28421	90.9	90
48	0.8153	1371	0.2969	61	540	1.7	28961	92.6	92
49	0.9050	1390	0.3020	62	491	1.6	29452	94.2	93
50	0.9979	1409	0.3079	64	409	1.3	29861	95.5	95

Raw Score	Measure	Scale Score	Logit SE	Scale Score SE	Freq	Freq %	Cum Freq	Cum Freq %	Percentile
51	1.0948	1429	0.3145	65	348	1.1	30209	96.6	96
52	1.1960	1450	0.3222	67	267	0.9	30476	97.4	97
53	1.3026	1472	0.3310	68	206	0.7	30682	98.1	98
54	1.4155	1496	0.3413	70	156	0.5	30838	98.6	98
55	1.5360	1521	0.3533	73	112	0.4	30950	99.0	99
56	1.6658	1548	0.3674	76	101	0.3	31051	99.3	99
57	1.8068	1577	0.3842	79	67	0.2	31118	99.5	99
58	1.9621	1609	0.4046	84	51	0.2	31169	99.7	99
59	2.1357	1645	0.4295	89	25	0.1	31194	99.7	99
60	2.3335	1686	0.4610	95	31	0.1	31225	99.8	99
61	2.5644	1735	0.5017	104	18	0.1	31243	99.9	99
62	2.8434	1793	0.5572	115	18	0.1	31261	100.0	99
63	3.1977	1867	0.6379	132	5	0.0	31266	100.0	99
64	3.6861	1970	0.7706	159	4	0.0	31270	100.0	99
65	4.4875	2139	1.0603	219	4	0.0	31274	100.0	99
66	5.7876	2410	1.8666	385	2	0.0	31276	100.0	99

Appendix L: 2006 Grade 12 Fall Reading Retest Raw-to-Scaled Score Conversion Table

Raw Score	Measure	Scale Score	Logit SE	Scale Score SE	Freq	Freq %	Cum Freq	Cum Freq %	Percentile
0	-5.6272	700	1.8375	451	1	0.0	1	0.0	1
1	-4.3931	700	1.0212	251	1	0.0	2	0.0	1
2	-3.6574	700	0.7362	181	0	0.0	2	0.0	1
3	-3.2102	700	0.6122	150	1	0.0	3	0.0	1
4	-2.8814	700	0.5394	132	5	0.0	8	0.0	1
5	-2.6175	700	0.4905	120	14	0.1	22	0.1	1
6	-2.3948	700	0.4550	112	20	0.1	42	0.2	1
7	-2.2004	700	0.4278	105	47	0.2	89	0.4	1
8	-2.0266	700	0.4064	100	70	0.3	159	0.7	1
9	-1.8686	700	0.3890	95	120	0.6	279	1.3	1
10	-1.7230	700	0.3747	92	146	0.7	425	2.0	2
11	-1.5872	726	0.3627	89	194	0.9	619	2.9	2
12	-1.4594	758	0.3526	87	232	1.1	851	4.0	3
13	-1.3381	787	0.3439	84	316	1.5	1167	5.5	5
14	-1.2224	816	0.3366	83	329	1.5	1496	7.0	6
15	-1.1113	843	0.3303	81	321	1.5	1817	8.5	8
16	-1.0039	869	0.3250	80	410	1.9	2227	10.5	10
17	-0.8998	895	0.3205	79	398	1.9	2625	12.4	11
18	-0.7983	920	0.3168	78	461	2.2	3086	14.5	13
19	-0.6989	944	0.3137	77	501	2.4	3587	16.9	16
20	-0.6014	968	0.3112	76	520	2.4	4107	19.3	18
21	-0.5052	992	0.3093	76	557	2.6	4664	21.9	21
22	-0.4100	1015	0.3079	76	693	3.3	5357	25.2	24
23	-0.3155	1038	0.3070	75	737	3.5	6094	28.7	27
24	-0.2213	1061	0.3066	75	746	3.5	6840	32.2	30
25	-0.1273	1085	0.3067	75	834	3.9	7674	36.1	34
26	-0.0330	1108	0.3073	75	958	4.5	8632	40.6	38
27	0.0617	1131	0.3084	76	996	4.7	9628	45.3	43
28	0.1573	1155	0.3099	76	1062	5.0	10690	50.3	48
29	0.2539	1178	0.3120	77	1043	4.9	11733	55.2	53
30	0.3520	1203	0.3145	77	1132	5.3	12865	60.5	58
31	0.4519	1227	0.3176	78	1118	5.3	13983	65.8	63
32	0.5540	1252	0.3213	79	1126	5.3	15109	71.1	68
33	0.6585	1278	0.3256	80	1068	5.0	16177	76.1	74
34	0.7662	1305	0.3306	81	949	4.5	17126	80.6	78
35	0.8774	1332	0.3364	83	875	4.1	18001	84.7	83
36	0.9927	1361	0.3430	84	748	3.5	18749	88.2	86
37	1.1129	1391	0.3505	86	669	3.1	19418	91.4	90
38	1.2387	1422	0.3591	88	508	2.4	19926	93.7	93
39	1.3711	1455	0.3689	91	401	1.9	20327	95.6	95
40	1.5113	1490	0.3802	93	286	1.3	20613	97.0	96
41	1.6608	1528	0.3931	96	211	1.0	20824	98.0	97
42	1.8211	1568	0.4081	100	146	0.7	20970	98.7	98
43	1.9946	1612	0.4254	104	102	0.5	21072	99.1	99
44	2.1842	1660	0.4458	109	57	0.3	21129	99.4	99
45	2.3936	1713	0.4701	115	47	0.2	21176	99.6	99
46	2.6283	1773	0.4996	123	28	0.1	21204	99.8	99
47	2.8960	132	0.5367	132	22	0.1	21226	99.9	99
48	3.2098	144	0.5858	144	7	0.0	21233	99.9	99
49	3.5933	161	0.6569	161	13	0.1	21246	100.0	99
50	4.0992	191	0.7762	191	6	0.0	21252	100.0	99
51	4.8967	258	1.0516	258	3	0.0	21255	100.0	99
52	6.1755	455	1.8549	455	0	0.0	21255	100.0	100

Appendix M: 2006 Grade 12 Fall Writing Retest Raw-to-Scaled Score Conversion Table

Raw Score	Measure	Scale Score	Logit SE	Scale Score SE	Freq	Freq %	Cum Freq	Cum Freq %	Percentile
22	-7.3380	700	1.8404	184	1	0.0	1	0.0	1
23	-6.0961	700	1.0270	103	7	0.1	8	0.1	1
24	-5.3474	700	0.7459	75	28	0.4	36	0.5	1
25	-4.8848	738	0.6256	63	49	0.7	85	1.2	1
26	-4.5382	772	0.5565	56	66	0.9	151	2.2	2
27	-4.2546	799	0.5112	51	62	0.9	213	3.0	3
28	-4.0102	823	0.4791	48	75	1.1	288	4.1	4
29	-3.7924	844	0.4552	46	59	0.8	347	5.0	5
30	-3.5939	863	0.4366	44	36	0.5	383	5.5	5
31	-3.4099	881	0.4219	42	39	0.6	422	6.0	6
32	-3.2370	897	0.4099	41	24	0.3	446	6.4	6
33	-3.0732	913	0.3999	40	18	0.3	464	6.6	7
34	-2.9167	929	0.3914	39	21	0.3	485	6.9	7
35	-2.7664	943	0.3841	38	24	0.3	509	7.3	7
36	-2.6214	958	0.3777	38	64	0.9	573	8.2	8
37	-2.4810	972	0.3719	37	82	1.2	655	9.4	9
38	-2.3446	986	0.3668	37	120	1.7	775	11.1	10
39	-2.2117	1000	0.3622	36	121	1.7	896	12.8	12
40	-2.0821	1013	0.3579	36	137	2.0	1033	14.8	14
41	-1.9554	1026	0.3540	35	114	1.6	1147	16.4	16
42	-1.8315	1040	0.3503	35	85	1.2	1232	17.6	17
43	-1.7099	1053	0.3469	35	80	1.1	1312	18.7	18
44	-1.5906	1066	0.3438	34	34	0.5	1346	19.2	19
45	-1.4735	1079	0.3409	34	24	0.3	1370	19.6	19
46	-1.3582	1091	0.3381	34	35	0.5	1405	20.1	20
47	-1.2448	1104	0.3356	34	73	1.0	1478	21.1	21
48	-1.1329	1116	0.3333	33	109	1.6	1587	22.7	22
49	-1.0225	1128	0.3312	33	171	2.4	1758	25.1	24
50	-0.9134	1140	0.3293	33	235	3.4	1993	28.5	27
51	-0.8055	1152	0.3277	33	322	4.6	2315	33.1	31
52	-0.6986	1164	0.3264	33	401	5.7	2716	38.8	36
53	-0.5924	1175	0.3253	33	370	5.3	3086	44.1	41
54	-0.4869	1187	0.3246	32	367	5.2	3453	49.3	47
55	-0.3816	1198	0.3242	32	259	3.7	3712	53.0	51
56	-0.2766	1209	0.3241	32	125	1.8	3837	54.8	54
57	-0.1715	1220	0.3245	32	35	0.5	3872	55.3	55
58	-0.0659	1231	0.3253	33	17	0.2	3889	55.6	55
59	0.0403	1243	0.3265	33	40	0.6	3929	56.1	56
60	0.1474	1254	0.3283	33	73	1.0	4002	57.2	57
61	0.2559	1265	0.3306	33	106	1.5	4108	58.7	58
62	0.3661	1277	0.3335	33	181	2.6	4289	61.3	60
63	0.4785	1288	0.3371	34	258	3.7	4547	65.0	63
64	0.5935	1300	0.3415	34	332	4.7	4879	69.7	67
65	0.7119	1313	0.3467	35	364	5.2	5243	74.9	72
66	0.8341	1325	0.3528	35	302	4.3	5545	79.2	77
67	0.9611	1338	0.3600	36	155	2.2	5700	81.4	80
68	1.0937	1352	0.3684	37	43	0.6	5743	82.1	82
69	1.2330	1366	0.3782	38	8	0.1	5751	82.2	82
70	1.3802	1382	0.3895	39	10	0.1	5761	82.3	82
71	1.5370	1398	0.4026	40	24	0.3	5785	82.7	82
72	1.7050	1415	0.4175	42	31	0.4	5816	83.1	83

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Raw Score	Measure	Scale Score	Logit SE	Scale Score SE	Freq	Freq %	Cum Freq	Cum Freq %	Percentile
73	1.8862	1434	0.4342	43	76	1.1	5892	84.2	84
74	2.0827	1455	0.4525	45	134	1.9	6026	86.1	85
75	2.2963	1478	0.4717	47	184	2.6	6210	88.7	87
76	2.5278	1503	0.4903	49	248	3.5	6458	92.3	90
77	2.7764	1530	0.5061	51	232	3.3	6690	95.6	94
78	3.0384	1558	0.5166	52	109	1.6	6799	97.1	96
79	3.3080	1588	0.5206	52	12	0.2	6811	97.3	97
80	3.5785	1617	0.5188	52	1	0.0	6812	97.3	97
81	3.8451	1645	0.5135	51	0	0.0	6812	97.3	97
82	4.1055	1672	0.5071	51	1	0.0	6813	97.3	97
83	4.3598	1698	0.5015	50	0	0.0	6813	97.3	97
84	4.6092	1723	0.4976	50	3	0.0	6816	97.4	97
85	4.8557	1747	0.4957	50	11	0.2	6827	97.5	97
86	5.1011	1771	0.4954	50	22	0.3	6849	97.9	98
87	5.3470	1794	0.4965	50	34	0.5	6883	98.3	98
88	5.5944	1818	0.4982	50	48	0.7	6931	99.0	99
89	5.8437	1841	0.5004	50	37	0.5	6968	99.6	99
90	6.0952	1865	0.5028	50	6	0.1	6974	99.6	99
91	6.3496	1889	0.5062	51	0	0.0	6974	99.6	99
92	6.6083	1913	0.5114	51	0	0.0	6974	99.6	99
93	6.8739	1939	0.5201	52	0	0.0	6974	99.6	99
94	7.1513	1965	0.5343	53	0	0.0	6974	99.6	99
95	7.4481	1994	0.5570	56	0	0.0	6974	99.6	99
96	7.7775	2026	0.5936	59	1	0.0	6975	99.7	99
97	8.1639	2064	0.6546	65	2	0.0	6977	99.7	99
98	8.6611	2113	0.7672	77	3	0.0	6980	99.7	99
99	9.4398	2191	1.0405	104	13	0.2	6993	99.9	99
100	10.7003	2317	1.8472	185	6	0.1	6999	100.0	99