

**SOUTH CAROLINA  
END-OF-COURSE EXAMINATION PROGRAM**

**2006–07 OPERATIONAL TEST TECHNICAL REPORT**



South Carolina  
Department of Education

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Together, we can.

Issued by the  
**South Carolina Department of Education**

**Office of Assessment**  
**Division of Curriculum Services and Assessment**

**Jim Rex**  
**State Superintendent of Education**

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## CHAPTER 1

### HISTORY AND OVERVIEW

The South Carolina Education Accountability Act of 1998 requires the development of end-of-course examinations in gateway, or benchmark, courses for grades nine through twelve. When the program is fully implemented, all students enrolled in End-of-Course Examination Program (EOCEP) courses will take the tests for those courses: Algebra 1, Mathematics for the Technologies 2, English 1, Physical Science, Biology 1, Applied Biology 2, and U.S. History and Constitution.

As they are enunciated in State Board of Education Regulation 43-262.4, the purposes and uses of the EOCEP tests are as follows:

- A. The tests shall promote instruction in the specific academic standards for the courses, encourage student achievement, and document the level of students' mastery of the curriculum standards.
- B. The tests shall serve as indicators of program, school, and school district effectiveness in the manner prescribed by the Education Oversight Committee in accordance with the provisions of the Education Accountability Act of 1998 (EAA).
- C. The tests shall be weighted 20 percent in the determination of students' final grades in the gateway courses.

EOCEP exams will be reported on the basis of the South Carolina uniform grading scale (UGS). The score reported is a scale score and not the percentage of correct answers.

The Algebra 1/Mathematics for the Technologies 2 end-of-course examination was implemented in the baseline year 2002–03 and was operational for the first time in 2003–04. The English 1, Physical Science, and Biology 1/Applied Biology 2 examinations that were field-tested in May 2003 were implemented for the baseline year in 2003–04. These subject-area EOCEP examinations became operational in 2004–05. The Biology 1/Applied Biology 2 examination was discontinued after the 2005–06 school year. The U.S. History and Constitution examination was implemented in 2006–07 with operational administrations beginning in 2007–08.

The South Carolina Department of Education (SCDE) awarded the contract for the development and scoring of the EOCEP tests in October 2001 to American Institutes for Research (AIR) and its partners Insite, Inc., and Pearson Educational Measurement (PEM). These contractors have undertaken a number of development, review, implementation, and data analysis activities. In spring 2007, Pearson became the sole contractor.

All EOCEP exams contain only multiple-choice items. For all subjects (with the exception of U.S. History and Constitution), the tests were operational in 2006–07. Rasch-ability-score-to-scale-score conversion tables were produced prior to each test administration on the basis of the item parameters in the pre-equated item pool. This technical report summarizes the results of statistical and psychometric analyses performed on the 2006–07 operational data for EOCEP tests in algebra, biology, English, and physical science.

In this report, all data are based on the students in the regular schools and in adult education programs only. Data on students in district-approved homeschools have been excluded

## CHAPTER 2

### STUDENT DEMOGRAPHICS

#### 2.1 STUDENT PARTICIPATION

Operational tests for EOCEP Algebra 1/Mathematics for the Technologies 2, English 1, and Physical Science were administered in 2006–07. An implementation test for EOCEP USHC was administered in 2006-07. All schools administered these tests to the students who completed courses for credit toward a high school diploma in which the EOCEP curriculum standards were fully addressed.

Demographic data were collected for each student. These data included the categories of gender, race/ethnicity, grade, English language fluency (LEP, limited English proficiency), lunch program participation, individualized education program (IEP) status, disability status, and migrant status. Table 2.1 presents the combined student participation in the three EOCEP administrations (fall, spring, and summer) by the demographic variables.

**TABLE 2.1**  
**Summary of 2006–07 EOCEP Student Demographics**

Demographics	Algebra 1/ Mathematics for the Technologies 2		English 1		Physical Science		U.S. History and Constitution	
	N	%	N	%	N	%	N	%
<b>Overall</b>	59,891		58,155		49,556		41,985	
<b>Gender</b>								
Female	29,913	49.95	28,817	49.55	24,997	50.44	21,546	51.32
Male	29,622	49.46	29,120	50.07	24,486	49.41	20,256	48.25
Unknown	356	0.59	218	0.37	73	0.15	183	0.44
<b>Grade</b>								
7	1,878	3.14	2	0.00	—	—	—	—
8	12,793	21.36	7,377	12.69	605	1.22	—	—
9	29,308	48.94	49,278	84.74	40,191	81.10	582	1.39
10	13,849	23.12	919	1.58	7,574	15.28	6,011	14.32
11	1,321	2.21	205	0.35	706	1.42	32,436	77.26
12	344	0.57	46	0.08	217	0.44	2,654	6.32
Adult education	51	0.09	19	0.03	28	0.06	48	0.11
Other	343	0.57	309	0.53	235	0.47	254	0.60
<b>Ethnicity</b>								
White	32,575	54.39	31,301	53.82	28,017	56.54	23,380	55.69
African American	23,278	38.87	22,781	39.17	18,236	36.80	15,884	37.83
Hispanic	2,099	3.50	2,186	3.76	1,844	3.72	1,314	3.13
Asian/Hawaiian-Pac. Islander	638	1.07	631	1.09	598	1.21	575	1.37
American Indian	114	0.19	118	0.20	90	0.18	76	0.18
Other	831	1.39	920	1.58	668	1.35	579	1.38
Unknown	356	0.59	218	0.37	103	0.21	177	0.42

**TABLE 2.1**  
**Summary of 2006–07 EOCEP Student Demographics**

Demographics	Algebra 1/ Mathematics for the Technologies 2		English 1		Physical Science		U.S. History and Constitution	
	N	%	N	%	N	%	N	%
<b>Language</b>								
Parent Waiver	60	0.10	66	0.11	63	0.13	49	0.12
Prefunctional	231	0.39	316	0.54	233	0.47	75	0.18
Beginner	204	0.34	229	0.39	177	0.36	101	0.24
Intermediate	263	0.44	250	0.43	231	0.47	193	0.46
Advanced	302	0.50	308	0.53	259	0.52	203	0.48
Full English Proficient	694	1.16	534	0.92	501	1.01	405	0.96
Title III Exited	241	0.40	240	0.41	237	0.48	119	0.28
English Speaker I	427	0.71	401	0.69	377	0.76	363	0.86
English Speaker II	54,294	90.65	52,487	90.25	45,326	91.46	38,684	92.14
Unknown	3,175	5.30	3,324	5.72	2,152	4.34	1,793	4.27
<b>Lunch</b>								
Free meals	22,032	36.79	22,621	38.90	18,053	36.43	13,338	31.77
Reduced-price meals	4,390	7.33	4,321	7.43	3,694	7.45	2,756	6.56
No free/reduced-price meals	31,790	53.08	29,875	51.37	27,003	54.49	25,158	59.92
Unknown	1,679	2.80	1,338	2.30	806	1.63	733	1.75
<b>IEP</b>								
Yes	4,619	7.71	5,220	8.98	4,036	8.14	2,991	7.12
No	7,325	12.23	7,122	12.25	6,143	12.40	5,164	12.30
Unknown	47,947	80.06	45,813	78.78	39,377	79.46	33,830	80.58
<b>Migrant</b>								
Yes	63	0.11	55	0.09	52	0.10	54	0.13
No	8,750	14.61	9,283	15.96	7,663	15.46	5,990	14.27
Unknown	51,078	85.28	48,817	83.94	41,841	84.43	35,941	85.60
<b>Gifted/talented</b>								
Academic	10,249	17.11	8,563	14.72	6,570	13.26	2,393	5.70
Artistic	420	0.70	383	0.66	328	0.66	347	0.83
Both academic and artistic	396	0.66	271	0.47	163	0.33	120	0.29
No	47,259	78.91	47,634	81.91	41,835	84.42	38,289	91.20
Unknown	1,567	2.62	1,304	2.24	660	1.33	836	1.99
<b>504 plan</b>								
Yes	588	0.98	632	1.09	544	1.10	479	1.14
No	43,195	72.12	43,841	75.39	37,946	76.57	29,781	70.93
Unknown	16,108	26.90	13,682	23.53	11,066	22.33	11,725	27.93
<b>Alternative school</b>								
Yes	848	1.42	1,265	2.18	931	1.88	420	1.00
No	18,168	30.34	18,368	31.58	15,994	32.27	11,315	26.95
Unknown	40,875	68.25	38,522	66.24	32,631	65.85	30,250	72.05

## 2.2 ACCOMMODATIONS

Supplemental information regarding the administration of the EOCEP to students with disabilities is contained in the EOCEP test administration manuals (SCDE 2006b, 2007b, and

2007d). These manuals provide guidelines for IEP teams in making decisions about testing students with disabilities and gives specific information regarding testing accommodations and modifications, test forms and materials, and test administration procedures.

A student with a documented disability is one who has been evaluated and found to meet the eligibility criteria for enrollment in special education as defined by the 1997 amendments to the Individuals with Disabilities Education Act and by State Board of Education Regulation 43-243.1, or one who has a disability covered under Section 504 of the Rehabilitation Act of 1973. The IEP or 504 plan team determines how a student with disabilities participates in the EOCEP assessments. Decisions about accommodations and modifications must be made on an individual student basis, not on the basis of the category of disability. Table 2.2 presents the percentages of accommodations used in the 2006–07 testing.

**TABLE 2.2**  
**Accommodations Used in 2006–07 EOCEP Testing**

<b>Accommodations</b>	<b>Algebra 1/ Mathematics for the Technologies 2</b>	<b>English 1</b>	<b>Physical Science</b>	<b>U.S. History and Constitution</b>
<b>Regular Form</b>				
	<b>(N = 58,387)</b>	<b>(N = 56,170)</b>	<b>(N = 48,109)</b>	<b>(N = 41,090)</b>
Setting	1.61	1.72	1.58	1.17
Timing	6.67	12.11	9.36	8.50
Scheduling	4.69	4.04	1.82	1.82
Response options	0.94	1.11	1.17	1.82
Presentation	1.98	3.43	2.73	5.47
<b>Customized Form</b>				
	<b>(N = 1,504)</b>	<b>(N = 1,985)</b>	<b>(N = 1,447)</b>	<b>(N = 895)</b>
Setting	75.80	75.77	74.43	72.74
Timing	7.36	8.30	7.16	8.67
Scheduling	2.84	1.70	2.20	2.67
Response options	1.76	2.01	2.03	2.53
Presentation	56.70	47.77	57.69	57.20

Total responses in each column may exceed 100 percent because some students received accommodations in more than one category.

### 2.3 TEST ADMINISTRATION TIME

In addition to providing their demographic information, students were asked to record on their answer documents the exact times that they started and finished the test. These answer documents were scanned, and the total elapsed time was calculated for each student. (It was not possible to calculate a total testing time for students with incomplete or invalid data.) A large majority of students finished the test within two hours, as tables 2.3 and 2.4 reflect.

**TABLE 2.3**

**Test Duration in 2006–07 EOCEP Testing with Regular Forms**

Time Taken	Algebra 1/Mathematics for the Technologies 2			English 1		
	Fall 2006 (N = 8,630)	Spring 2007 (N = 48,698)	Summer 2007 (N = 1,059)	Fall 2006 (N = 7,640)	Spring 2007 (N = 47,957)	Summer 2007 (N = 573)
15 min	0.36	0.36	0.19	0.39	0.32	0.00
30 min	2.22	1.69	1.61	1.28	1.86	0.87
45 min	9.77	8.44	10.20	6.19	9.04	7.16
1 hr	20.83	19.68	15.49	17.43	21.76	13.09
1 hr 15 min	20.32	20.96	15.30	19.80	21.11	19.02
1 hr 30 min	13.44	16.10	13.98	15.62	14.64	17.80
1 hr 45 min	7.05	9.44	8.69	11.20	8.51	12.91
2 hr	3.45	5.42	4.63	5.76	4.93	4.36
2 hr 15 min	1.92	2.74	2.93	3.14	2.51	4.19
2 hr 30 min	1.02	1.45	1.51	1.54	1.26	2.09
2 hr 45 min	0.46	0.74	0.57	0.72	0.60	0.35
3 hr or more	0.80	1.05	0.85	1.15	0.99	1.57
Invalid*	18.34	11.92	24.08	15.76	12.47	16.58
Time Taken	Physical Science			U.S. History		
	Fall 2006 (N = 10,071)	Spring 2007 (N = 37,858)	Summer 2007 (N = 180)	Fall 2006 (N = 11,819)	Spring 2007 (N = 29,115)	Summer 2007 (N = 156)
15 min	1.19	2.17	0.64	0.22	0.44	0.56
30 min	12.73	19.09	11.54	4.11	2.05	1.67
45 min	28.94	31.27	33.97	18.06	10.54	13.33
1 hr	24.05	18.63	23.08	26.82	23.23	19.44
1 hr 15 min	8.60	5.98	8.33	18.44	21.57	18.33
1 hr 30 min	2.29	1.98	3.85	8.98	13.33	6.67
1 hr 45 min	1.02	0.85	—	3.45	7.09	3.33
2 hr	0.71	0.45	0.64	1.46	3.79	0.56
2 hr 15 min	0.30	0.20	—	0.71	1.80	—
2 hr 30 min	0.21	0.05	—	0.35	0.89	—
2 hr 45 min	0.09	0.01	—	0.14	0.34	—
3 hr or more	0.14	0.12	—	0.46	0.53	—
Invalid*	19.72	19.20	17.95	16.81	14.40	36.11

\* includes responses with no mark or multiple marks on start and/or stop time fields, making it impossible to compute the difference between start and stop times

**TABLE 2.4**

**Test Duration in 2006–07 EOCEP Testing with Customized Forms**

Time Taken	Algebra 1/Math Tech 2			English 1		
	Fall 2006 (N = 316)	Spring 2007 (N = 1,173)	Fall 2007 (N = 15)	Fall 2006 (N = 297)	Spring 2007 (N = 1,681)	Summer 2007 (N = 7)
15 min	0.32	0.68	—	0.34	0.42	—
30 min	2.22	2.47	—	0.34	0.24	—
45 min	5.06	7.42	6.67	2.36	2.32	—
1 hr	19.62	15.60	13.33	15.82	10.05	—
1 hr 15 min	16.77	16.37	13.33	17.51	16.60	—
1 hr 30 min	9.18	13.47	53.33	21.89	28.26	14.29
1 hr 45 min	9.81	10.32	—	13.47	16.48	14.29
2 hr	6.65	6.82	—	4.38	7.73	—
2 hr 15 min	3.80	5.71	—	2.69	2.02	14.29
2 hr 30 min	2.22	1.28	6.67	3.37	1.49	—
2 hr 45 min	1.90	1.88	6.67	3.37	1.25	—
3 hr or more	3.80	2.05	—	2.02	1.07	—
Invalid*	18.67	15.94	—	12.46	12.08	28.57

  

Time Taken	Physical Science			U.S. History		
	Fall 2006 (N = 315)	Spring 2007 (N = 1,130)	Summer 2007 (N = 2)	Fall 2006 (N = 271)	Spring 2007 (N = 622)	Summer 2007 (N = 2)
15 min	0.37	0.48	—	0.32	0.35	—
30 min	5.54	7.88	—	3.49	1.68	—
45 min	27.31	21.70	—	10.16	10.71	—
1 hr	24.72	23.63	—	25.08	22.39	100.00
1 hr 15 min	9.59	17.20	50.00	17.78	21.95	—
1 hr 30 min	7.75	5.79	—	15.56	12.12	—
1 hr 45 min	6.27	3.05	—	6.67	8.94	—
2 hr	2.58	1.77	—	1.27	3.81	—
2 hr 15 min	1.11	1.13	—	1.27	0.44	—
2 hr 30 min	0.74	1.29	—	2.86	0.71	—
2 hr 45 min	—	—	—	0.95	0.35	—
3 hr or more	1.48	0.16	—	1.90	2.04	—
Invalid*	12.18	15.92	50.00	12.70	14.51	—

\* includes responses with no mark or multiple marks on start and/or stop time fields, making it impossible to compute the difference between start and stop times

## 2.4 STUDENT QUESTIONNAIRE

After the administration of the EOCEP test in each subject, students were instructed to complete a questionnaire that addressed such topics as the difficulty of the test, the nature of the instruction they had received in the particular course, their use of calculators in the particular course (algebra only), and the amount of time they had spent engaged in lab activities in the particular course (biology and physical science only).

## CHAPTER 3

### TEST ADMINISTRATION

#### 3.1 TEST ADMINISTRATION WINDOW

The test administration dates for 2006–07 are given in table 3, below. School districts were required to administer all EOCEP tests within a single five-day period. Districts were instructed to administer makeup tests following their regular testing period. For all three EOCEP administrations, district test coordinators (DTCs) were responsible for providing the testing schedule to all school test coordinators (STCs) in their particular districts.

For students who missed the originally scheduled EOCEP test due to a death in the family, illness, or another situation deemed valid by the state, school districts were required to have a five-day makeup period the week immediately following the original test administration. It was recommended that a single makeup test be given per day, but two could have been given per day if necessary.

**TABLE 3**  
**2006–07 EOCEP Test Administration Windows**

<b>Administration</b>	<b>Dates</b>
Fall 2006	December 1, 2006–January 31, 2007
Spring 2007	May 1, 2007–June 7, 2007
Summer 2007	June 18, 2007–August 3, 2007

#### 3.2 TIMING OF THE TEST

The EOCEP tests were not timed; however, each session had to be administered during a single day (unless a student’s IEP or 504 plan specifically stated that he or she needed to have the test administered over several days). To ensure an accurate assessment, districts and schools were instructed that students should be given as much uninterrupted time as they needed to complete the test.

#### 3.3 ADMINISTRATION MANUALS

Working with the SCDE, AIR staff drafted the administration manuals for the test. SCDE staff reviewed and revised the manuals, and the AIR finalized and printed them. The EOCEP district test coordinator supplements (SCDE 2006a, 2007a, and 2007c) and the EOCEP test administration manuals (TAMs) were produced for each administration of the EOCEP. The DTC supplements included only the information that DTCs needed for the administration of the EOCEP tests. The TAMs contained the information that STCs, test administrators (TAs), and monitors needed to administer the tests to students in their schools.

The TAMs and the supplements included logistical and administration procedures as well as the directions (scripts) for administering the tests. The DTCs, STCs, and TAs were encouraged to use a form provided in the manuals to offer comments and suggestions on the procedures therein. The comments were compiled in a spreadsheet and sent to the SCDE to review and to use as the basis for potential changes in test procedures. The TAMs also included a testing irregularity form that test administrators were instructed to use to report any problems or deviations from established testing procedures.

Appendix C in the TAMs includes a detailed description of materials available, as well as additional graphics for completing student demographic information and returning scorable and nonscorable test materials. Tables showing the types of customized materials available for students who require such special testing formats were also provided.

### **3.4 CUSTOMIZED MATERIALS**

Customized formats of the EOCEP test were available for Algebra 1/Mathematics for the Technologies 2, Physical Science, English 1, and USHC:

- Loose-leaf test booklets—printed single-sided, one item to a page, and bound in three-ring binders—allowed individuals to remove the pages, if necessary, during testing.
- Large-print booklets were produced for students who have difficulty reading text in a standard-size font. The large-print version used an 18-point sans serif font and was issued as a 9 x 12-inch spiral-bound booklet.
- Braille booklets were produced for students who typically read classroom materials in braille. The braille version was issued as spiral-bound booklet containing 11½ x 11-inch interpoint braille pages.
- A regular print Form C test booklet was provided in test packets for students or TAs to use with customized formats such as the oral script, braille, large-print, loose-leaf, and sign language versions. These booklets were saddle-stitched and printed in a 12-point font, just as the regular, noncustomized test booklets were.
- For students whose IEP or 504 plan requires the oral administration of tests, oral administration scripts gave specific directions to TAs regarding the appropriate way to read the test questions, the passages on which the questions were based, and the answer choices.

Beginning in spring 2005, audiocassettes were also produced to be used in the oral administration of the tests. These audiocassettes contained the directions for administering the tests, the passages that were the basis of the questions, the test questions, and the answer choices. The audiocassettes and the oral administration scripts contained the same information.

- Sign language videotapes—produced for Algebra 1/ Mathematics for the Technologies 2, English 1 (although this type of administration of English 1 is a modification), Physical Science, and USHC—included the signed test directions, questions, and response options. The videotapes were produced in two languages: American Sign Language and Pidgin Signed English.

### 3.5 MATERIALS SHIPPING AND RETURN

For all three administrations, test materials were shipped to district offices approximately two weeks before testing—in time for the DTCs to be able to distribute school materials at least one week before the schools' test dates. Each school's shipment was boxed individually and labeled with the total number of boxes shipped to that school.

The district office was also sent a shipment of noncustomized overage materials, which were to be used by the DTCs to complete any additional materials requests from the STCs. Materials in customized formats were sent only to the schools and only in the quantities ordered.

TAs were instructed to return their test materials to the STCs immediately after the test administration. The STCs then redistributed test materials to the TAs who needed them in order to administer makeup tests. Those TAs were instructed to return the makeup test materials to their STC immediately after the makeup session. DTCs were to arrange for the pickup of all scorable materials for return to PEM within three days after testing.

Because the test scores were required to be reported back to the schools quickly for calculating final course grades, a rapid scoring and reporting process was utilized for all three administrations. Each school district could return the scorable materials to PEM, in as many as five separate shipments, as they arrived from the schools. Nonscorable materials were to be returned in one shipment within three days of the completion of makeup tests. For all three administrations, step-by-step instructions for returning scorable and nonscorable materials were included in the district materials. These instructions listed the toll-free phone numbers of the trucking companies that the DTCs were instructed to call to schedule pickups of return materials

### 3.6 TEST SECURITY

Test security is an important issue before, during, and following test administrations. The specific procedures to be followed during the EOCEP test administrations are outlined in the *Test Administration Manual* (SCDE 2006b). Reprinted in the manual are an excerpt from Section 59-1-445 of the South Carolina Code of Laws, a summary of Section 59-1-447 of the Code of Laws, and the entirety of State Board of Education Regulation 43-100.

Section 59-1-445 states in part:

It is unlawful for anyone knowingly and wilfully [*sic*] to violate security procedures regulations promulgated by the State Board of Education for mandatory tests administered by or through the State Board of Education to students or educators, or knowingly and willfully to:

- (a) Give examinees access to test questions prior to testing;
- (b) Copy, reproduce, or use in any manner inconsistent with test security regulations all or any portion of any secure test booklet;
- (c) Coach examinees during testing or alter or interfere with examinees' responses in any way;
- (d) Make answer keys available to examinees;

- (e) Fail to follow security regulations for distribution and return of secure test [materials] as directed, or fail to account for all secure test materials before, during, and after testing;
- (f) Participate in, direct, aid, counsel, assist in, encourage, or fail to report any of the acts prohibited in this section.

Regulation 43-100 mandates that “Each local school board must develop and adopt a district test security policy” with procedures for the storage and handling of all test materials and that each district superintendent must annually designate a DTC. The regulation and the *TAM* provide specific security guidelines regarding various aspects of the test administration process (e.g., the storage and handling of test materials, the responsibility of administrators to monitor students during testing and to remove supplemental materials from the testing room, and the requirement that administrators refrain from interference with student responses).

Following the test administration and the return of materials, the DRC generated a missing-document report, listing the identification numbers of unreturned secure materials. The report was used to notify districts of missing materials. A toll-free telephone line was manned to answer questions regarding missing documents, and follow-up procedures were employed until all materials were accounted for. Subsequently, the districts located and returned the materials or sent signed statements indicating that all secure materials had been returned.

### **Secure Materials**

Secure materials—each assigned a human- and machine-readable security identification number—are test booklets, answer documents, customized test materials, and secure administration manuals. Secure materials were locked in storage until the day of the test administration and were signed out when they were to be used, and signed in when they were returned. These materials were not to be left unattended at any time.

## CHAPTER 4

### TECHNICAL CHARACTERISTICS OF ITEMS

This chapter reports the results of item analyses based on classical test theory (CTT) using a proprietary program designed by the AIR. Item difficulty ( $p$ ) is the proportion (or percentage) of examinees correctly answering a dichotomously scored item.

Item discrimination is defined as a correlation between the item score and the total score. For the discrimination index, point-biserial correlations were produced. In computing the point-biserial correlation, the AIR corrected for spuriousness. In the recoding of missing data for item analysis, all omitted and not-reached items were recoded as incorrect, with a zero score. After discussions between the SCDE and the AIR, it was decided to exclude from the CTT item analyses and item calibrations those students who had used customized test materials.

#### 4.1 ITEM NONRESPONSE RATES

Although the EOCEP tests were not timed, students were required to finish each test during one school day, unless they had an IEP that allowed for accommodations in administration. Districts and schools were instructed that, if they had space and staff available, students should be given as much uninterrupted time as necessary to take the test to ensure an accurate assessment.

The item nonresponse rates indicate the percentage of students who did not reach a particular item and all items thereafter. The item omit rates indicate the percentage of students who did not respond to that particular item but did respond to a later item. The percentages for not-reached and omit rates were quite low—less than 1 percent—in all subjects. These data indicate that students were given ample time to complete the test in every subject.

#### 4.2 CLASSICAL ITEM STATISTICS

Table 4, on the following page, provides a summary of item  $p$ -values and item discrimination values for operational items for all three administrations.

**TABLE 4**

**Summary of Classical Item Statistics for the 2006–07 EOCEP Test**

<b>Administration</b>	<b>Number of Items</b>	<b>Average <i>p</i>-value</b>	<b>Average Adjusted Point-Biserial Correlation</b>
<b>Algebra 1/Mathematics for the Technologies 2</b>			
Fall 2006	50	0.51	0.28
Spring 2007	50	0.57	0.35
Summer 2007	50	0.47	0.30
<b>English 1</b>			
Fall 2006	55	0.61	0.38
Spring 2007	55	0.67	0.37
Summer 2007	55	0.60	0.35
<b>Physical Science</b>			
Fall 2006	55	0.53	0.37
Spring 2007	55	0.54	0.37
Summer 2007	55	0.49	0.30
Summer 2007 field-test items	179	0.48	0.29
<b>U.S. History and Constitution</b>			
Fall 2006	55	0.41	0.30
Spring 2007	55	0.46	0.34
Summer 2007	55	0.44	0.28

## CHAPTER 5

### ITEM CALIBRATION AND SCALING

#### 5.1 METHODOLOGY AND SOFTWARE

The one-parameter Rasch model (Rasch 1960; Wright and Stone 1979) was used to calibrate all items, using WINSTEPS software (see Linacre and Wright 2003). The WINSTEPS program employs joint maximum likelihood estimation, an approach that estimates the item and person parameters simultaneously.

#### 5.2 ITEM CALIBRATION AND PRE-EQUATING

The AIR conducted field tests with a sufficient number of items to create precalibrated item pools and to construct pre-equated operational-test forms for all tests. For all subjects, the Rasch-ability-score-to-scale-score conversion tables were produced prior to each test administration based on the item parameters in the pre-equated item pools.

#### 5.3 SCALING

The SCDE provided the AIR with initial Rasch-ability-score-to-scale-score conversion tables that showed the transformation of the ability score interval for each scale score for each subject area. The AIR then applied these tables specifically to each test form for each subject area on the basis of the pre-equated item pool. The conversion tables took into account any differences in the difficulty of the various forms. All items shared a common metric so that the scale scores developed for each form were automatically adjusted for differences in item difficulty. For all EOCEP test subjects, the scale scores are now reported according to the South Carolina UGS. Scale scores range from 0 to 100 with a minimum passing score of 70. Each scale score is assigned a letter-grade equivalent (A, B, C, D, or F) in accordance with the UGS.

#### 5.4 DEFINITION OF SCOREABILITY

A student was considered “tested” if the student answered at least one question in the answer document. All tested students’ item responses were scored. All omits and not-reached items were recoded as incorrect, with a zero score.

#### 5.5 REPORTING OF ZERO AND PERFECT SCORES

In item response theory (IRT), zero and perfect scores are assigned the ability of minus and plus infinity. The AIR used the WINSTEPS default setting in estimating finite values for the extreme scores. In other words, a fractional score point value was subtracted from perfect scores, and was added to zero scores. The WINSTEPS default value for adjusting the extreme scores for extreme measures is 0.3.

## 5.6 PERCENTAGE OF STUDENTS SCORING IN EACH LETTER-GRADE EQUIVALENT

Tables 5.1 through 5.8 report student performance for all administrations combined. The results are summarized separately for regular schools and for adult education programs. The number and percentage of students in each letter-grade equivalent and the mean scale score are reported for the test-takers overall and by demographic category.

TABLE 5.1

### Algebra 1/Mathematics for the Technologies 2 EOCEP Test, Regular Schools: Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Demographics

Demographics	N	Mean Scale Score	A	B	C	D	F
<b>Overall</b>	58,338	79.73	14.84	16.38	29.46	22.94	16.37
<b>Gender</b>							
Female	29,370	79.86	13.96	16.79	30.31	23.97	14.97
Male	28,631	79.66	15.80	16.03	28.63	21.89	17.65
Unknown	337	74.95	10.09	9.79	27.00	22.55	30.56
<b>Grade</b>							
7	1,874	92.66	59.71	22.31	13.50	3.47	1.01
8	12,781	87.13	33.87	25.52	26.97	10.00	3.64
9	28,731	78.26	9.52	15.49	31.91	25.33	17.75
10	13,076	74.58	2.91	9.16	29.24	32.39	26.30
11	1,230	74.03	2.60	10.89	25.69	30.57	30.24
12	329	76.67	6.69	13.68	32.83	26.14	20.67
Other	315	76.16	12.70	14.29	23.49	21.27	28.25
<b>Ethnicity</b>							
White	31,936	82.72	21.65	20.37	29.74	17.99	10.25
African American	22,562	75.49	5.05	10.76	29.12	30.15	24.92
Hispanic	2,003	78.36	10.53	15.53	30.85	24.51	18.57
Asian/Hawaiian-Pac. Islander	627	87.05	39.86	20.09	23.61	11.96	6.22
American Indian	106	78.31	7.55	16.04	33.96	24.53	17.92
Other	765	79.79	15.30	16.86	29.28	22.48	16.08
Unknown	339	74.75	9.14	10.91	27.43	21.53	30.97
<b>Language</b>							
Parent Waiver	55	80.18	10.91	25.46	21.82	20.26	29.09
Prefunctional	194	69.10	2.58	3.09	15.46	29.90	48.97
Beginner	177	73.46	3.95	5.08	25.42	36.16	29.38
Intermediate	247	76.60	7.29	9.31	31.17	29.15	23.08
Advanced	292	81.34	16.44	20.89	31.85	20.21	10.62
Full English Proficient	553	78.85	13.20	15.55	29.11	23.87	18.26
Title III Exited	238	81.98	19.75	19.33	30.25	18.07	12.61
English Speaker I	413	75.00	8.72	6.78	26.15	27.60	30.75
English Speaker II	53,416	80.07	15.35	16.88	29.70	22.71	15.36
Unknown	2,753	75.07	8.10	9.52	26.41	25.17	30.80

#### Lunch

**TABLE 5.1**

**Algebra 1/Mathematics for the Technologies 2 EOCEP Test, Regular Schools:  
Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Demographics**

<b>Demographics</b>	<b>N</b>	<b>Mean Scale Score</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
Free meals	21,240	75.98	6.23	11.58	29.33	29.00	23.86
Reduced-price meals	4,302	79.00	11.16	16.13	32.17	24.20	16.34
No free/reduced-price meals	31,308	82.56	21.52	19.91	29.26	18.59	10.72
Unknown	1,488	75.84	8.00	11.22	27.76	24.46	28.56
<b>IEP</b>							
Yes	3,346	72.36	3.29	6.34	22.33	30.63	37.42
No	7,214	78.43	12.30	15.10	28.35	24.29	19.98
Unknown	47,778	80.44	16.04	17.27	30.13	22.20	14.36
<b>Migrant</b>							
Yes	54	75.87	9.26	12.96	16.67	35.19	25.93
No	7,388	77.32	10.54	13.74	27.37	24.89	23.46
Unknown	50,896	80.09	15.47	16.76	29.78	22.65	15.34
<b>Courses taken</b>							
3142 (Math Tech 2)	15,222	74.36	2.61	8.60	28.98	33.28	26.53
4111 (Alg 1)	41,102	81.70	19.31	19.22	29.62	19.21	12.64
Other	2,014	80.07	16.14	17.08	29.99	21.05	15.74
<b>Gifted/talented</b>							
Academic	10,237	89.61	43.36	26.56	22.39	6.11	1.58
Artistic	418	80.89	16.27	19.86	29.19	21.05	13.64
Both academic and artistic	394	91.13	52.28	25.13	15.99	4.82	1.78
No	45,908	77.53	8.35	14.14	31.17	26.85	19.49
Unknown	1,381	76.08	8.33	11.51	29.11	23.61	27.44
<b>504 plan</b>							
Yes	575	79.22	12.87	16.87	29.91	22.61	17.74
No	41,848	79.77	15.00	16.36	29.19	23.07	16.39
Unknown	15,915	79.66	14.50	16.41	30.18	22.63	16.29
<b>Alternative school</b>							
Yes	823	68.69	1.46	2.92	17.13	27.34	51.15
No	16,836	79.67	15.10	16.08	29.11	22.77	16.94
Unknown	40,679	79.98	15.01	16.77	29.86	22.93	15.44

**TABLE 5.2**

**Algebra 1/ Mathematics for the Technologies 2 EOCEP Test, Adult Education Programs:  
Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Subgroups**

<b>Demographics</b>	<b>N</b>	<b>Mean Scale Score</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
<b>Overall</b>	49	71.41	2.04	4.08	18.37	30.61	44.90
<b>Gender</b>							
Female	16	72.94	—	6.25	31.25	25.00	37.50
Male	32	70.88	3.13	3.13	12.50	34.38	46.88
<b>Grade</b>							
Other	49	71.41	2.04	4.08	18.37	30.61	44.90
<b>Ethnicity</b>							
White	16	73.56	—	6.25	25.00	43.75	25.00
African American	31	69.87	3.23	—	16.13	22.58	58.06
<b>Language</b>							
Full English Proficient	27	70.00	3.70	—	18.52	25.93	51.85
Unknown	18	74.28	—	11.11	16.67	44.44	27.78
<b>Lunch</b>							
Free meals	13	70.31	—	7.69	7.69	38.46	46.15
No free/reduced-price meals	31	72.48	3.23	3.23	25.81	25.81	41.94
<b>IEP</b>							
No	23	73.30	—	8.70	21.74	34.78	34.78
Unknown	23	70.52	4.35	—	17.39	26.09	52.17
<b>Migrant</b>							
No	24	72.08	—	8.33	16.67	33.33	41.67
Unknown	25	70.76	4.00	—	20.00	28.00	48.00
<b>Courses taken</b>							
3142 (Math Tech 2)	23	73.74	4.35	4.35	30.43	26.09	34.78
4111 (Alg 1)	14	70.57	—	7.14	7.14	35.71	50.00
Other	12	67.92	—	—	8.33	33.33	58.33
<b>Gifted/talented</b>							
No	45	71.47	2.22	4.44	20.00	26.67	46.67
Unknown	3	70.33	—	—	—	66.67	33.33
<b>504 plan</b>							
No	24	72.08	—	8.33	16.67	33.33	41.67
Unknown	24	70.50	4.17	—	16.67	29.17	50.00
<b>Alternative school</b>							
No	24	72.08	—	8.33	16.67	33.33	41.67
Unknown	22	71.41	4.55	—	22.73	27.27	45.45

**TABLE 5.3**  
**English 1 EOCEP Test, Regular Schools:**  
**Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Demographics**

<b>Demographics</b>	<b>N</b>	<b>Mean Scale Score</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
<b>Overall</b>	56,152	74.78	7.62	14.34	22.22	22.35	33.48
<b>Gender</b>							
Female	28,109	75.73	8.36	15.07	22.86	23.02	30.69
Male	27,845	73.86	6.90	13.65	21.62	21.68	36.15
Unknown	198	69.18	2.53	8.59	15.66	20.71	52.53
<b>Grade</b>							
8	7,376	84.31	19.74	30.31	29.95	14.71	5.29
9	47,456	73.52	5.87	12.10	21.30	23.64	37.09
10	817	65.88	2.45	4.77	10.89	17.14	64.75
11	178	65.50	—	4.49	14.04	20.79	60.67
12	39	67.62	10.26	7.69	2.56	20.51	58.97
Other	284	69.44	2.82	9.51	15.49	21.13	51.06
<b>Ethnicity</b>							
White	30,441	78.65	11.85	20.07	26.63	20.78	20.67
African American	21,783	69.79	1.85	6.70	16.47	24.99	50.00
Hispanic	2,150	69.53	3.44	9.53	17.77	20.42	48.84
Asian/Hawaiian-Pac. Islander	627	78.81	16.11	20.10	23.61	16.11	24.09
American Indian	107	73.65	8.41	4.67	24.30	27.10	35.51
Other	847	75.61	9.09	16.17	23.37	19.84	31.52
Unknown	197	68.14	2.54	5.58	14.72	21.83	55.33
<b>Language</b>							
Parent Waiver	64	68.77	—	7.81	18.75	20.31	53.12
Prefunctional	312	54.32	—	—	0.96	2.56	96.47
Beginner	225	57.32	—	0.44	2.67	7.11	89.78
Intermediate	244	65.07	0.41	1.64	6.97	20.90	70.08
Advanced	298	72.07	1.01	7.72	19.13	31.54	40.60
Full English Proficient	402	69.89	3.23	8.96	17.41	22.39	48.01
Title III Exited	238	76.26	4.20	18.91	27.73	21.01	28.15
English Speaker I	392	70.91	3.57	8.93	18.37	22.70	46.43
English Speaker II	51,263	75.27	8.03	14.83	22.72	22.54	31.88
Unknown	2,714	71.70	4.42	11.13	19.42	21.44	43.59
<b>Lunch</b>							
Free meals	21,518	69.72	2.16	6.83	16.80	24.26	49.95
Reduced-price meals	4,181	73.94	5.00	11.50	23.56	26.02	33.92
No free/reduced-price meals	29,342	78.68	12.06	20.34	26.08	20.51	21.02
Unknown	1,111	72.78	5.85	12.15	20.16	20.16	41.67
<b>IEP</b>							
Yes	3,465	64.08	0.75	3.09	9.03	18.64	68.48
No	7,087	73.33	5.66	12.29	21.59	22.51	37.96
Unknown	45,600	75.81	8.44	15.52	23.32	22.61	30.12
<b>Migrant</b>							

**TABLE 5.3**  
**English 1 EOCEP Test, Regular Schools:**  
**Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Demographics**

<b>Demographics</b>	<b>N</b>	<b>Mean Scale Score</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
Yes	50	65.70	4.00	6.00	12.00	16.00	62.00
No	7,463	71.60	4.21	10.28	19.59	22.22	43.71
Unknown	48,639	75.27	8.14	14.98	22.63	22.38	31.88
<b>Courses taken</b>							
3011 (Eng 1)	54,239	74.79	7.67	14.31	22.16	22.37	33.49
Other	1,913	74.32	6.01	15.16	23.84	21.80	33.19
<b>Gifted/talented</b>							
Academic	8,548	86.50	26.78	33.81	26.78	9.59	3.04
Artistic	382	77.90	12.57	15.71	22.77	26.96	21.99
Both academic and artistic	270	87.89	32.59	33.33	25.19	7.41	1.48
No	45,872	72.54	3.90	10.66	21.39	24.84	39.21
Unknown	1,080	72.47	5.65	11.67	20.28	19.44	42.96
<b>504 plan</b>							
Yes	618	74.33	6.63	14.08	22.01	23.30	33.98
No	42,049	74.57	7.37	13.87	22.01	22.58	34.17
Unknown	13,485	75.46	8.41	15.84	22.89	21.59	31.27
<b>Alternative school</b>							
Yes	1,209	63.27	0.41	2.65	8.44	16.96	71.55
No	16,614	74.64	7.10	14.01	22.52	22.72	33.65
Unknown	38,329	75.20	8.06	14.86	22.52	22.36	32.20

**TABLE 5.4**

**English 1 EOCEP Test, Adult Education Programs:  
Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Demographics**

<b>Demographics</b>	<b>N</b>	<b>Mean Scale Score</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
<b>Overall</b>	18	65.00	—	—	11.11	22.22	66.67
<b>Gender</b>							
Female	13	64.62	—	—	15.38	15.38	69.23
<b>Grade</b>							
Other	18	65.00	—	—	11.11	22.22	66.67
<b>Ethnicity</b>							
White	5	71.80	—	—	20.00	40.00	40.00
African American	13	62.38	—	—	7.69	15.38	76.92
<b>Language</b>							
Advanced	7	64.43	—	—	14.29	14.29	71.43
Full English Proficient	7	62.57	—	—	—	28.57	71.43
<b>Lunch</b>							
Free meals	11	62.64	—	—	—	18.18	81.82
No free/reduced-price meals	7	68.71	—	—	28.57	28.57	42.86
<b>IEP</b>							
Unknown	14	64.86	—	—	7.14	28.57	64.29
<b>Migrant</b>							
Unknown	14	64.86	—	—	7.14	28.57	64.29
<b>Courses taken</b>							
3011 (Eng 1)	15	65.13	—	—	6.67	26.67	66.67
<b>Gifted/talented</b>							
No	17	64.29	—	—	5.88	23.53	70.59
<b>504 plan</b>							
Unknown	14	64.86	—	—	7.14	28.57	64.29
<b>Alternative school</b>							
Yes	10	61.80	—	—	—	10.00	90.00

**TABLE 5.5**

**Physical Science EOCEP Test, Regular Schools:  
Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Demographics**

<b>Demographics</b>	<b>N</b>	<b>Mean Scale Score</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
<b>Overall</b>	48,081	70.99	9.59	7.88	16.39	17.04	49.09
<b>Gender</b>							
Female	24,452	70.74	8.38	7.19	16.67	17.92	49.84
Male	23,569	71.27	10.87	8.60	16.14	16.12	48.28
Unknown	60	61.58	1.67	6.67	5.00	20.00	66.67
<b>Grade</b>							
8	605	77.46	13.22	17.36	23.80	19.67	25.95
9	39,136	71.41	10.13	8.19	16.97	17.04	47.67
10	7,286	68.88	7.27	6.01	13.46	16.76	56.49
11	646	66.26	3.56	3.10	11.15	18.58	63.62
12	199	66.95	3.02	5.03	13.57	19.60	58.79
Other	209	64.16	3.35	5.26	7.18	12.92	71.29
<b>Ethnicity</b>							
White	27379	75.11	14.16	11.10	20.70	18.32	35.73
African American	17592	64.60	2.22	3.02	9.85	15.19	69.72
Hispanic	1746	67.35	5.15	5.04	14.26	16.38	59.16
Asian/Hawaiian-Pac. Islander	589	80.19	28.86	11.21	18.16	15.96	25.80
American Indian	83	70.13	8.43	6.02	13.25	14.46	57.83
Other	612	72.43	12.25	9.15	17.15	16.66	44.77
Unknown	80	63.84	3.75	6.25	12.50	15.00	62.50
<b>Language</b>							
Parent Waiver	58	68.67	16.13	9.68	13.79	18.96	53.45
Prefunctional	207	56.60	0.00	0.97	2.90	5.80	90.34
Beginner	147	58.51	0.68	0.68	2.72	6.80	89.12
Intermediate	208	63.14	0.48	3.37	7.69	11.54	76.92
Advanced	244	68.57	4.10	4.10	15.57	17.62	58.61
Full English Proficient	407	67.25	7.37	4.42	10.32	16.95	60.93
Title III Exited	234	71.39	4.70	8.97	19.66	22.65	44.02
English Speaker I	370	66.30	5.95	4.05	10.54	12.97	66.49
English Speaker II	44,465	71.44	10.03	8.12	16.87	17.28	47.71
Unknown	1,741	65.40	4.08	5.97	10.51	13.79	65.65
<b>Lunch</b>							
Free meals	17,235	65.05	2.80	3.74	10.48	15.37	67.61
Reduced-price meals	3,592	69.30	5.43	6.57	15.56	19.46	52.98
No free/reduced-price meals	26,555	75.21	14.71	10.86	20.49	17.83	36.11
Unknown	699	65.58	4.15	3.72	10.59	15.59	65.95
<b>IEP</b>							
Yes	2,793	61.11	1.68	2.26	6.19	10.45	79.41
No	6,052	69.35	8.72	7.25	13.48	16.28	54.26
Unknown	39,236	71.94	10.29	8.38	17.57	17.63	46.14

**TABLE 5.5**

**Physical Science EOCEP Test, Regular Schools:  
Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Demographics**

<b>Demographics</b>	<b>N</b>	<b>Mean Scale Score</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
<b>Migrant</b>							
Yes	43	64.28	4.65	6.98	4.65	11.63	72.09
No	6,315	68.01	7.97	6.78	12.22	14.58	58.45
Unknown	41,723	71.44	9.84	8.05	17.04	17.42	47.65
<b>Courses taken</b>							
3211	47,051	71.02	9.52	7.91	16.48	17.14	48.95
3231	17	76.41	29.41	11.76	11.76	11.76	35.29
3241	146	93.15	63.70	19.86	12.33	2.74	1.37
Other	867	65.23	3.92	4.04	12.69	14.07	65.28
<b>Gifted/talented</b>							
Academic	6,564	84.97	31.72	20.03	25.59	12.89	9.77
Artistic	324	74.67	15.12	9.88	16.67	19.44	38.89
Both academic and artistic	163	85.72	33.13	17.18	26.99	15.95	6.75
No	40,490	68.72	5.96	5.93	14.96	17.72	55.43
Unknown	540	63.93	2.59	2.78	8.70	15.19	70.74
<b>504 plan</b>							
Yes	530	70.75	10.00	6.23	17.74	15.66	50.38
No	36,626	70.90	9.48	7.79	16.47	16.95	49.30
Unknown	10,925	71.28	9.93	8.27	16.06	17.40	48.34
<b>Alternative school</b>							
Yes	906	57.19	0.44	0.77	2.98	5.96	89.85
No	14,684	71.33	10.26	8.32	16.62	16.75	48.06
Unknown	32,491	71.21	9.54	7.88	16.67	17.48	48.43

**TABLE 5.6**  
**Physical Science EOCEP Test, Adult Education Programs:**  
**Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Demographics**

<b>Demographics</b>	<b>N</b>	<b>Mean Scale Score</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
<b>Overall</b>	28	57.96	—	—	3.57	3.57	92.86
<b>Gender</b>							
Female	16	55.69	—	—	—	6.25	93.75
Male	11	60.27	—	—	9.09	—	90.91
<b>Grade</b>							
Other	28	57.96	—	—	3.57	3.57	92.86
<b>Ethnicity</b>							
African American	24	57.13	—	—	4.17	4.17	91.67
<b>Language</b>							
Full English Proficient	12	56.83	—	—	8.33	—	91.67
Unknown	9	64.67	—	—	—	11.11	88.89
<b>Lunch</b>							
Free meals	13	55.54	—	—	—	7.69	92.31
No free/reduced-price meals	12	59.67	—	—	8.33	—	91.67
<b>IEP</b>							
No	6	66.17	—	—	—	16.67	83.33
Unknown	22	55.73	—	—	4.55	—	95.45
<b>Migrant</b>							
No	6	66.17	—	—	—	16.67	83.33
Unknown	22	55.73	—	—	4.55	—	95.45
<b>Courses taken</b>							
3211	26	57.96	—	—	3.85	3.85	92.31
<b>Gifted/talented</b>							
No	25	57.52	—	—	—	4.00	92.00
<b>504 plan</b>							
Yes	6	66.17	—	—	—	16.67	83.33
No	22	55.73	—	—	4.55	—	95.45
<b>Alternative school</b>							
Yes	8	53.75	—	—	—	—	100.00
No	6	66.17	—	—	—	16.67	83.33
Unknown	14	56.86	—	—	7.14	—	92.86

**TABLE 5.7**

**U.S. History and Constitution Implementation EOCEP Test, Regular Schools:  
Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Demographics**

<b>Demographics</b>	<b>N</b>	<b>Mean Scale Score</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
<b>Overall</b>	41,042	66.59	1.06	3.50	10.02	18.35	67.07
<b>Gender</b>							
Female	21,171	65.74	0.77	2.55	8.04	17.10	71.54
Male	19,693	67.53	1.38	4.55	12.20	19.69	62.18
Unknown	178	65.08	0.56	—	3.93	19.10	76.40
<b>Grade</b>							
9	560	60.31	—	0.18	2.14	7.50	90.18
10	5,856	63.65	0.68	1.86	5.79	12.36	79.30
11	31,826	67.36	1.18	3.96	10.99	19.85	64.02
12	2,559	65.18	0.86	2.50	9.22	15.28	72.14
Other	241	66.22	—	0.83	10.37	22.82	65.98
<b>Ethnicity</b>							
White	22,966	68.98	1.54	5.37	14.15	22.99	55.94
African American	15,460	63.00	0.31	0.79	3.82	11.29	83.78
Hispanic	1,265	65.57	0.47	2.37	8.06	18.26	70.83
Asian/Hawaiian-Pac. Islander	566	70.13	3.71	5.22	14.78	20.35	56.00
American Indian	76	65.49	—	—	10.53	23.68	65.79
Other	543	67.33	1.10	3.68	12.71	19.89	62.62
Unknown	177	64.44	0.56	—	3.39	17.51	78.53
<b>Language</b>							
Parent Waiver	47	64.17	—	—	2.13	12.77	85.11
Prefunctional	72	59.93	—	—	—	2.78	97.22
Beginner	91	60.45	—	—	1.10	5.49	93.41
Intermediate	175	61.33	0.57	—	1.14	8.57	89.71
Advanced	179	65.23	—	1.68	5.03	15.08	78.21
Full English Proficient	318	64.71	0.63	0.63	7.55	13.52	77.67
Title III Exited	118	66.43	—	3.39	10.17	16.10	70.34
English Speaker I	342	65.40	0.58	1.17	9.06	19.30	69.88
English Speaker II	38,157	66.69	1.10	3.61	10.14	18.54	66.61
Unknown	1,543	66.35	0.71	3.05	10.37	17.69	68.18
<b>Lunch</b>							
Free meals	12,922	63.12	0.28	0.89	4.23	11.74	82.86
Reduced-price meals	2,700	64.82	0.41	1.81	6.52	16.52	74.74
No free/reduced-price meals	24,811	68.63	1.55	5.09	13.49	22.02	57.85
Unknown	609	65.23	0.66	1.31	6.90	17.24	73.89
<b>IEP</b>							
Yes	2,230	61.83	0.27	0.99	3.41	9.55	85.78
No	5,093	65.88	0.55	2.95	8.17	16.38	71.96
Unknown	33,719	67.02	1.19	3.75	10.73	19.23	65.10
<b>Migrant</b>							
Yes	53	66.94	3.77	1.89	9.43	15.09	69.81

**TABLE 5.7**

**U.S. History and Constitution Implementation EOCEP Test, Regular Schools:  
Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Demographics**

<b>Demographics</b>	<b>N</b>	<b>Mean Scale Score</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
No	5,163	65.44	0.48	2.67	8.29	14.86	73.70
Unknown	35,826	66.76	1.14	3.62	10.27	18.86	66.11
<b>Courses taken</b>							
3320	36,518	65.58	0.42	1.97	8.29	18.06	71.26
336D	127	70.26	5.51	8.66	25.98	15.75	44.09
3372	2,718	79.70	9.01	24.32	31.97	21.27	13.43
Other	1,679	67.20	1.85	2.68	10.84	20.07	64.56
<b>Gifted/talented</b>							
Academic	2,384	73.75	3.86	9.90	23.95	27.47	34.82
Artistic	345	69.64	1.74	7.83	13.04	22.03	55.36
Both academic and artistic	120	71.07	1.67	5.83	18.33	30.00	44.17
No	37,458	66.09	0.88	3.05	9.05	17.68	69.33
Unknown	735	66.83	0.82	2.99	11.43	19.05	65.71
<b>504 plan</b>							
Yes	468	66.75	1.71	2.56	10.26	19.23	66.24
No	28,970	66.67	1.12	3.66	10.07	18.03	67.12
Unknown	11,604	66.41	0.89	3.15	9.88	19.11	66.98
<b>Alternative school</b>							
Yes	405	59.68	—	0.49	1.23	4.69	93.58
No	28,970	66.67	1.12	3.66	10.07	18.03	67.12
Unknown	30,125	66.79	1.15	3.70	10.34	18.74	66.06

**TABLE 5.8**

**U.S. History and Constitution Implementation EOCEP Test, Adult Education Programs:  
Percentages of Student Scores in Letter-Grade Equivalents, Overall and by Demographics**

<b>Demographics</b>	<b>N</b>	<b>Mean Scale Score</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
<b>Overall</b>	48	61.27	—	—	2.08	14.58	83.33
<b>Gender</b>							
Female	23	59.70	—	—	—	8.70	91.30
Male	25	62.72	—	—	4.00	20.00	76.00
Unknown	48	61.27	—	—	2.08	14.58	83.33
<b>Grade</b>							
Other	48	61.27	—	—	2.08	14.58	83.33
<b>Ethnicity</b>							
White	18	64.83	—	—	5.56	22.22	72.22
African American	28	58.21	—	—	—	3.57	96.43
<b>Language</b>							
Advanced	13	65.62	—	—	—	38.46	61.54
Full English Proficient	19	57.89	—	—	—	5.26	94.74
Unknown	10	63.00	—	—	—	10.00	90.00
<b>Lunch</b>							
Free meals	8	56.38	—	—	—	—	100.00
No free/reduced-price meals	20	58.95	—	—	5.00	5.00	90.00
Unknown	19	65.95	—	—	—	31.58	68.42
<b>IEP</b>							
No	23	60.87	—	—	—	21.74	78.26
Unknown	23	61.91	—	—	4.35	8.70	86.96
<b>Migrant</b>							
No	19	59.05	—	—	—	10.53	89.47
Unknown	29	62.72	—	—	3.45	17.24	79.31
<b>Courses taken</b>							
3320	23	61.26	—	—	4.35	4.35	91.30
Other	25	61.28	—	—	—	24.00	76.00
<b>Gifted/talented</b>							
No	29	58.24	—	—	3.45	6.90	89.66
Unknown	17	66.00	—	—	—	29.41	70.59
<b>504 plan</b>							
No	25	61.16	—	—	—	24.00	76.00
Unknown	23	61.39	—	—	4.35	4.35	91.30
<b>Alternative school</b>							
Yes	6	57.33	—	—	—	—	100.00
No	15	56.20	—	—	—	—	100.00
Unknown	27	64.96	—	—	3.70	25.93	70.37

## CHAPTER 6

### DESCRIPTIVE STATISTICS

Descriptive statistics of scale score distributions for the three 2006–07 test administrations combined are presented in table 6 for students overall and by gender and race.

**TABLE 6**  
**2006–07 EOCEP Test Administration Summary Statistics:**  
**Regular Schools and Adult Education Programs, Overall and by Gender and Race**

<b>Algebra 1/Mathematics for the Technologies 2</b>							
<b>Regular Schools</b>				<b>Adult Education Programs</b>			
	<b>N</b>	<b>Scale Score</b>			<b>N</b>	<b>Scale Score</b>	
		<b>Mean</b>	<b>SD</b>			<b>Mean</b>	<b>SD</b>
<b>Overall</b>	58,338	79.73	11.31	<b>Overall</b>	49	71.41	8.84
<b>Gender</b>				<b>Gender</b>			
Males	29,370	79.86	10.77	Males	16	72.94	8.69
Females	28,631	79.66	11.78	Females	32	70.88	9.00
<b>Ethnicity</b>				<b>Ethnicity</b>			
Whites	31,936	82.72	11.10	Whites	16	73.56	7.73
African Americans	22,562	75.49	10.05	African Americans	31	69.87	9.11
<b>English 1</b>							
<b>Regular Schools</b>				<b>Adult Education Programs</b>			
	<b>N</b>	<b>Scale Score</b>			<b>N</b>	<b>Scale Score</b>	
		<b>Mean</b>	<b>SD</b>			<b>Mean</b>	<b>SD</b>
<b>Overall</b>	56,152	74.78	12.42	<b>Overall</b>	18	65.00	8.36
<b>Gender</b>				<b>Gender</b>			
Males	28,109	75.73	11.91	Males	13	64.62	9.01
Females	27,845	73.86	12.83	Females	5	66.00	7.18
<b>Ethnicity</b>				<b>Ethnicity</b>			
Whites	31,936	82.72	11.10	Whites	5	71.80	5.45
African Americans	22,562	75.49	10.05	African Americans	13	62.38	7.90
<b>Physical Science</b>							
<b>Regular Schools</b>				<b>Adult Education Programs</b>			
	<b>N</b>	<b>Scale Score</b>			<b>N</b>	<b>Scale Score</b>	
		<b>Mean</b>	<b>SD</b>			<b>Mean</b>	<b>SD</b>
<b>Overall</b>	48,081	70.99	14.19	<b>Overall</b>	28	57.96	8.16
<b>Gender</b>				<b>Gender</b>			
Males	24,452	70.74	13.51	Males	16	55.69	7.86
Females	23,569	71.27	14.85	Females	11	60.27	7.80
<b>Ethnicity</b>				<b>Ethnicity</b>			
Whites	27,379	75.11	14.07	Whites	1	67.00	—
African Americans	17,592	64.60	11.68	African Americans	24	57.13	8.24

**TABLE 6**  
**2006–07 EOCEP Test Administration Summary Statistics:**  
**Regular Schools and Adult Education Programs, Overall and by Gender and Race**

<b>U.S. History and Constitution</b>							
<b>Regular Schools</b>				<b>Adult Education Programs</b>			
	<b>N</b>	<b>Scale Score</b>			<b>N</b>	<b>Scale Score</b>	
		<b>Mean</b>	<b>SD</b>			<b>Mean</b>	<b>SD</b>
<b>Overall</b>	41,042	66.59	10.18	<b>Overall</b>	48	61.27	7.17
<b>Gender</b>				<b>Gender</b>			
Males	21,171	65.74	9.68	Males	23	59.70	6.56
Females	19,693	67.53	10.64	Females	25	62.72	7.54
<b>Ethnicity</b>				<b>Ethnicity</b>			
Whites	22,966	68.98	10.61	Whites	18	64.83	6.85
African Americans	15,460	63.00	8.28	African Americans	28	58.21	5.77

## CHAPTER 7

### RELIABILITY

In this chapter, multiple types of reliability indexes are presented. For the total tests, two measures of the reliability of raw scores and the classical standard error of measurement (SEM) are given. At the passing cut scores, conditional standard errors of measurement (CSEM) for raw scores, for scale scores, and measures of decision consistency were determined.

#### 7.1 RELIABILITY OF RAW SCORES

Table 7.1 reports the reliability coefficients and SEMs. The reliabilities of the total raw scores were computed using the Kuder-Richardson formulas 20 (KR20) and 21 (KR21). The KR21 reliability coefficients were used in computing the CSEM for the raw scores shown below, in section 7.2.

**TABLE 7.1**  
**2006–07 EOCEP Reliability Coefficients of Raw Scores**

Administration	Number of Items	Number of Test-Takers	KR20	KR21	SEM
<b>Algebra 1/Mathematics for the Technologies 2</b>					
Fall 2006	50	9,774	0.84	0.82	3.16
Spring 2007	50	48,698	0.86	0.84	3.19
Summer 2007	50	1,059	0.80	0.78	3.23
<b>English 1</b>					
Fall 2006	55	7,640	0.89	0.89	3.39
Spring 2007	55	47,957	0.88	0.87	3.20
Summer 2007	55	573	0.86	0.84	3.22
<b>Physical Science</b>					
Fall 2006	55	10,071	0.88	0.88	3.37
Spring 2007	55	37,858	0.88	0.87	3.35
Summer 2007	55	180	0.82	0.80	3.42
<b>U.S. History and Constitution</b>					
Fall 2006	55	11,819	0.81	0.81	3.49
Spring 2007	55	29,115	0.86	0.85	3.45
Summer 2007	55	156	0.78	0.76	3.44

#### 7.2 OVERALL AND CONDITIONAL SEM

The overall classical SEM is defined as  $s_x\sqrt{1-r_{xx}}$ , where  $s_x$  is the standard deviation of the scale score and  $r_{xx}$  is the reliability coefficient. The CSEM for raw scores at the cut score was computed using the following formula (Feldt and Qualls 1998; Huynh, Meyer, and Barton 2000):

$$\text{raw score } CSEM = \sqrt{\left(\frac{1-KR20}{1-KR21}\right)\left(\frac{c(k-c)}{k-1}\right)}, \text{ where } c = \text{cut score and } k = \text{number of items.}$$

The scale score CSEM at the passing cut score was computed on the basis of the conditional standard error of the Rasch ability cut score. The scale score CSEM is defined as the reciprocal of the square root of the test information function at the point on the ability continuum that corresponds to the scale score cut (Hambleton, Swaminathan, and Rogers 1991). Although classical and conditional SEMs serve similar roles, the values of the conditional standard errors are determined separately for each possible test score, while the classical SEM is a single value used for all scores. Table 7.2 presents both the raw score and scale score CSEMs.

**TABLE 7.2**  
**2006–07 EOCEP Conditional Standard Errors of Measurement**

<b>Administration</b>	<b>Raw Scores</b>	<b>Scale Scores</b>
<b>Algebra/ Mathematics for the Technologies 2</b>		
Fall 2006	3.28	4.15
Spring 2007	3.24	3.33
Summer 2007	3.19	3.30
<b>English 1</b>		
Fall 2006	3.15	3.31
Spring 2007	3.02	3.32
Summer 2007	2.87	3.34
<b>Physical Science</b>		
Fall 2006	3.32	3.69
Spring 2007	3.28	3.69
Summer 2007	3.28	3.68
<b>U.S. History and Constitution</b>		
Fall 2006	3.28	2.92
Spring 2007	3.20	2.97
Summer 2007	3.13	2.94

### 7.3 CONSISTENCY OF PASSING CUT SCORES

When student performance is reported in a pass or fail category, a reliability index is computed in terms of the probabilities of consistent classification of students, as specified in standard 2.15 in *Standards for Educational and Psychological Testing* (AERA, APA, and NCME 1999). This index takes into consideration the consistency of classifications for the percentage of examinees who would be classified in the same way on a second (hypothetical) EOCEP administration using either the same form or an alternate equivalent form.

Although a number of procedures are available for estimating classification errors (Livingston and Lewis 1995; Hanson and Brennan 1990; Huynh 1976; Subkoviak 1976), the AIR used the *beta* binomial distribution method (Huynh 1979; Huynh, Meyer, and Barton 2000). Table 7.3 presents a summary of agreements between the operational test classifications—that is, the percentages of students who would be consistently classified in the same category (pass or fail) on two equivalent administrations of the test. The consistency index for the passing score is computed for each administration.

**TABLE 7.3**  
**2006–07 EOCEP Consistency Index for Passing Scores**

<b>Administration</b>	<b>Consistency Index</b>
<b>Algebra/ Mathematics for the Technologies 2</b>	
Fall 2006	88.7%
Spring 2007	85.6%
Summer 2007	85.1%
<b>English 1</b>	
Fall 2006	88.0%
Spring 2007	85.7%
Summer 2007	85.6%
<b>Physical Science</b>	
Fall 2006	86.2%
Spring 2007	85.7%
Summer 2007	87.3%
<b>U.S. History and Constitution</b>	
Fall 2006	90.0%
Spring 2007	89.7%
Summer 2007	88.9%

## CHAPTER 8

### VALIDITY

Three types of validity evidence are reported for the algebra test forms: test content, item fairness, and internal structure. Evidence of content validity is presented in the item content distribution across domains and the alignment of the 2006–07 EOCEP test items with the state content standards. Evidence of item fairness is examined with the information on differential item functioning (DIF). Evidence of internal structure is provided in correlations among content domains.

#### 8.1 ITEM DISTRIBUTION ACROSS CONTENT DOMAINS

The EOCEP operational and implementation test forms were constructed according to the test specifications and the test blueprints. These items measured the specific assessment standards that were approved by the SCDE. All items in the test forms were reviewed by the content review committee and the sensitivity review committee and were approved by the SCDE. The 2006–07 EOCEP test form specifications are presented in tables 8.1 through 8.4 by subject.

**TABLE 8.1**  
**EOCEP TEST Item Distribution by Content Domain for**  
**Algebra 1/Mathematics for the Technologies 2**

<b>Content Domain</b>	<b>Fall</b>	<b>Spring</b>	<b>Summer</b>
<b>I. Understanding Functions</b>			
A. Relationships	5	5	5
B. Linear and Quadratic Functions and Data Representations	5	5	6
C. Generalizations, Algebraic Symbols, and Matrices	4	4	4
D. Algebraic Expressions in Problem Solving Situations	6	6	5
<b>II. Linear Functions</b>			
A. Representations	4	4	4
B. Interpretations	8	8	8
C. Equations and Inequalities	8	7	7
D. Systems of Linear Equations	2	3	3
<b>III. Quadratic and Other Functions</b>			
A. Quadratic Functions	5	5	5
B. Other Functions	3	3	3
<b>Totals</b>	<b>50</b>	<b>50</b>	<b>50</b>

**TABLE 8.2**  
**EOCEP TEST Item Distribution by Content Domain for English 1**

<b>Strand/Topic</b>	<b>Fall</b>	<b>Spring</b>	<b>Summer</b>
R1. Reading Comprehension	13	13	13
R2. Analysis of Text	14	15	14
R3. Word Analysis	9	8	9
RS. Research	3	3	3
W1. Writing	11	11	11
C1. Communication	5	5	5
Totals	55	55	55

**TABLE 8.3**  
**EOCEP TEST Item Distribution by Content Domain for Physical Science**

<b>Content Domain</b>	<b>Fall</b>	<b>Spring</b>	<b>Summer</b>
PS-1 Scientific Inquiry	8	8	8
PS-2 Chemistry: Structure and Properties of Atoms	8	8	8
PS-3 Chemistry: Structure and Properties of Matter	8	8	8
PS-4 Chemistry: Chemical Reactions and the Classifications, Structures, and Properties of Chemical Compounds	8	8	8
PS-5 Interaction of Matter and Energy: Forces and Motion	8	8	8
PS-6 Interactions of Matter and Energy: Nature, Conservation, and Transformation of Energy	8	8	8
PS-7 Interactions of Matter and Energy: Nature and Properties of Mechanical and Electromagnetic Waves	7	7	7
Totals	55	55	55

**TABLE 8.4****EOCEP TEST Item Distribution by Content Domain for U.S. History and Constitution**

<b>Content Domain</b>	<b>Fall</b>	<b>Spring</b>	<b>Summer</b>
USHC-1 Settlement in North America	2	2	2
USHC-2 Establishment of United States	8	8	8
USHC-3 Westward Movement and Conflicts in Nineteenth Century	4	4	4
USHC-4 Causes and Course of Civil War and Reconstruction	5	5	5
USHC-5 Developments in Second Half of Nineteenth Century	7	7	7
USHC-6 Foreign Developments and United States' Emergence as World Power in Twentieth Century	5	5	5
USHC-7 Economic Boom-and-Bust in 1920s and 1930s	8	8	8
USHC-8 Impact of World War II on Domestic and Foreign Policy	5	5	5
USHC-9 Events that Impacted the United States during the Cold War era	9	9	9
USHC-10 Foreign Policy and Economics since fall of Soviet Union	2	2	2
Totals	55	55	55

**8.2 ITEM DEVELOPMENT**

All EOCEP items were developed with reference to the South Carolina curriculum standards and measurement guidelines. Various committees reviewed all items; only items approved by these committees and the SCDE were included in the operational forms.

**8.3 DIFFERENTIAL ITEM FUNCTIONING**

A critical issue in statewide high-stakes testing is whether the test is fair to all test-takers; therefore, an important goal of item and test development is to produce a pool of items that are judged to be free of bias either toward or against any group of students. All EOCEP items were reviewed both for bias and for differential item functioning (DIF).

The sensitivity review committee examined the EOCEP items for potential bias, including language that might disadvantage a particular group, might be considered offensive to members of a particular group, or might present obstacles to a particular group due to factors unrelated to content and processes specified in the standards.

As with other statistical methodologies, there are numerous widely accepted approaches to detecting potential unfairness in test items. Many of these methods fall into the general category of DIF analyses. DIF statistics provide information regarding relative group performance at the item level for gender and ethnic comparisons while controlling for ability. Once an item is flagged for a significant DIF, judgment is used to determine whether the difference in difficulty

shown by the DIF index is unfairly related to group membership. The DIF statistics do not necessarily indicate bias or unfairness in an item but may simply show the relative strengths and weaknesses of the two groups being compared after the overall ability that the test is intended to measure has been controlled for.

### **Procedure:**

The procedure that the AIR selected for detecting DIF was the Mantel-Haenszel (MH) chi-square for dichotomous items. The AIR calculated the Mantel-Haenszel statistic (MH D-DIF) for MC items (Holland and Thayer 1988) to measure the degree and magnitude of DIF. The examinee group of interest is the *focal* group, and the group to which performance on the item is being compared is the *reference* group. In this report, the focal groups for DIF were females and African Americans.

Items were separated into one of three categories on the basis of DIF statistics (Holland and Thayer 1988; Dorans and Holland 1993): negligible DIF (category A), intermediate DIF (category B), and large DIF (category C). The items in category C, which exhibit significant DIF, are of primary concern.

Positive values of *delta* indicate that the item is easier for the *focal* group, suggesting that the item favors the *focal* group. A negative value of *delta* indicates that the item is more difficult for the *focal* group. The item classifications are based on the Mantel-Haenszel chi-square and the MH delta ( $\Delta$ ) value as follows:

- The item is classified as C category if the absolute value of the MH delta value (i.e.,  $|\Delta|$ ) is significantly greater than 1 and also greater than or equal to 1.5.
- The item is classified as B category if the MH delta value ( $\Delta$ ) is significantly different from 0 and either the absolute value of the MH delta ( $|\Delta|$ ) is less than 1.5 or the absolute value of the MH delta ( $|\Delta|$ ) is not significantly different from 1.
- The item is classified as A category if delta value ( $\Delta$ ) is not significantly different from 0 or the absolute value of delta ( $|\Delta|$ ) is less than or equal to 1.

The data in table 8.5, below, summarize the number of items in DIF categories for the 2006–07 operational test items.

When the operational forms were constructed, all item statistics from the initial field test were reviewed and approved by the SCDE. Due to the large number of items subjected to DIF analyses, erroneous flags could be expected. All flagged items were closely examined by the SCDE. Inclusion of any flagged item on an operational form (i.e., an item classified as C category) was possible only when the SCDE had approved that item.

**TABLE 8.5**  
**Summary of Differential Item Functioning for**  
**2006–07 EOCEP Operational Items**

Administration	Cat	Whites/African Americans				Males/Females			
		Alg	Eng	PS	US	Alg	Eng	PS	US
Fall	A+	24	29	21	28	22	34	27	25
	A–	25	26	31	25	27	20	25	28
	B+	0	0	2	0	1	0	1	1
	B–	0	0	1	2	0	1	2	1
	C+	1	0	0	0	0	0	0	0
	C–	0	0	0	0	0	0	0	0
Spring	A+	22	27	18	29	20	27	24	25
	A–	26	28	35	25	29	28	31	29
	B+	2	0	2	0	1	0	0	1
	B–	0	0	0	1	0	0	0	0
	C+	0	0	0	0	0	0	0	0
	C–	0	0	0	0	0	0	0	0
Summer	A+	19	17	15	8	21	25	21	19
	A–	20	30	39	46	25	24	34	36
	B+	5	0	0	0	2	2	0	0
	B–	4	5	0	0	1	1	0	0
	C+	2	3	0	0	1	1	0	0
	C–	0	0	1	0	0	2	0	0

## 8.4 CORRELATIONS AMONG CONTENT DOMAINS

Evidence of internal structure was examined using correlations among content domains. On the following pages, tables 8.6 through 8.9 report the correlation matrices for the raw scores among content domains for each test.

**TABLE 8.6**  
**Correlations among Domain Scores for the 2006–07 EOCEP Test in**  
**Algebra 1/Mathematics for the Technologies 2**

Domain*	UF	LF	QOF	Number of Items
<b>Fall Administration (N = 8,279)</b>				
<b>UF</b>	1.00	0.69	0.50	20
<b>LF</b>	—	1.00	0.53	22
<b>QOF</b>	—	—	1.00	8
<b>Spring Administration (N = 47,212)</b>				
<b>UF</b>	1.00	0.70	0.55	20
<b>LF</b>	—	1.00	0.56	22
<b>QOF</b>	—	—	1.00	8
<b>Summer Administration (N = 1,004)</b>				
<b>UF</b>	1.00	0.60	0.46	20
<b>LF</b>	—	1.00	0.48	22
<b>QOF</b>	—	—	1.00	8

\* UF = Understanding Functions  
 LF = Linear Functions  
 QOF = Quadratic and Other Functions

**TABLE 8.7**  
**Correlations among Domain Scores for the 2006–07 EOCEP Test in English 1**

Domain *	R1	R2	R3	RS	C1	W1	Number of Items
<b>Fall Administration (N = 7,527)</b>							
<b>R1</b>	1.00	0.62	0.64	0.40	0.50	0.57	13
<b>R2</b>	—	1.00	0.56	0.46	0.52	0.59	14
<b>R3</b>	—	—	1.00	0.35	0.47	0.53	9
<b>RS</b>	—	—	—	1.00	0.34	0.40	3
<b>C1</b>	—	—	—	—	1.00	0.47	5
<b>W1</b>	—	—	—	—	—	1.00	11
<b>Spring Administration (N = 47,520)</b>							
<b>R1</b>	1.00	0.64	0.56	0.37	0.47	0.55	13
<b>R2</b>	—	1.00	0.64	0.41	0.49	0.62	15
<b>R3</b>	—	—	1.00	0.36	0.45	0.56	8
<b>RS</b>	—	—	—	1.00	0.32	0.38	3
<b>C1</b>	—	—	—	—	1.00	0.46	5
<b>W1</b>	—	—	—	—	—	1.00	11
<b>Summer Administration (N = 562)</b>							
<b>R1</b>	1.00	0.64	0.60	0.23	0.46	0.51	13
<b>R2</b>	—	1.00	0.58	0.27	0.51	0.50	14
<b>R3</b>	—	—	1.00	0.25	0.40	0.45	9
<b>RS</b>	—	—	—	1.00	0.24	0.29	3
<b>C1</b>	—	—	—	—	1.00	0.42	5
<b>W1</b>	—	—	—	—	—	1.00	11

\* R1 = Reading Comprehension  
R2 = Analysis of Texts  
R3 = Word Analysis

RS = Research  
C1 = Communication  
W1 = Writing

**TABLE 8.8**  
**Correlations among Domain Scores for 2006–07 EOCEP Test in**  
**Physical Science**

<b>Domain*</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>Number of Items</b>
<b>Fall 2006 (N = 9,955)</b>								
<b>1</b>	1.00	0.48	0.47	0.49	0.52	0.53	0.46	8
<b>2</b>	—	1.00	0.45	0.51	0.51	0.51	0.50	8
<b>3</b>	—	—	1.00	0.45	0.48	0.47	0.41	8
<b>4</b>	—	—	—	1.00	0.53	0.52	0.50	8
<b>5</b>	—	—	—	—	1.00	0.57	0.51	8
<b>6</b>	—	—	—	—	—	1.00	0.48	8
<b>7</b>	—	—	—	—	—	—	1.00	7
<b>Spring 2007 (N = 37,267)</b>								
<b>1</b>	1.00	0.42	0.49	0.50	0.50	0.50	0.45	8
<b>2</b>	—	1.00	0.48	0.50	0.44	0.46	0.43	8
<b>3</b>	—	—	1.00	0.55	0.55	0.54	0.47	8
<b>4</b>	—	—	—	1.00	0.54	0.54	0.50	8
<b>5</b>	—	—	—	—	1.00	0.55	0.46	8
<b>6</b>	—	—	—	—	—	1.00	0.48	8
<b>7</b>	—	—	—	—	—	—	1.00	7
<b>Summer 2007 (N = 179)</b>								
<b>1</b>	1.00	0.29	0.36	0.35	0.49	0.36	0.42	8
<b>2</b>	—	1.00	0.31	0.43	0.32	0.19	0.25	8
<b>3</b>	—	—	1.00	0.36	0.33	0.36	0.26	8
<b>4</b>	—	—	—	1.00	0.51	0.38	0.23	8
<b>5</b>	—	—	—	—	1.00	0.48	0.42	8
<b>6</b>	—	—	—	—	—	1.00	0.38	8
<b>7</b>	—	—	—	—	—	—	1.00	7

\*1, Scientific Inquiry; 2, Chemistry: Atoms; 3, Chemistry: Matter; 4, Chemistry: Chemical Compounds; 5, Forces and Motion; 6, Nature, Conservation and Transformation of Energy; 7, Nature and Properties of Electromagnetic Waves

**TABLE 8.9**  
**Correlations among Domain Scores for the EOCEP Test in**  
**U.S. History and Constitution**

Domain *	1	2	3	4	5	6	7	8	9	10	Number of Items
<b>Fall 2006 (N = 11,695)</b>											
1	1.00	0.21	0.17	0.15	0.19	0.14	0.19	0.18	0.18	0.08	2
2	—	1.00	0.35	0.33	0.40	0.31	0.41	0.36	0.39	0.16	8
3	—	—	1.00	0.24	0.30	0.24	0.31	0.27	0.27	0.11	4
4	—	—	—	1.00	0.29	0.23	0.30	0.26	0.30	0.10	5
5	—	—	—	—	1.00	0.29	0.39	0.33	0.35	0.14	7
6	—	—	—	—	—	1.00	0.31	0.27	0.29	0.14	5
7	—	—	—	—	—	—	1.00	0.38	0.41	0.17	8
8	—	—	—	—	—	—	—	1.00	0.36	0.14	5
9	—	—	—	—	—	—	—	—	1.00	0.17	9
10	—	—	—	—	—	—	—	—	—	1.00	2
<b>Spring 2007 (N = 28,757)</b>											
1	1.00	0.18	0.15	0.14	0.16	0.15	0.16	0.16	0.19	0.09	2
2	—	1.00	0.39	0.34	0.39	0.41	0.45	0.42	0.49	0.26	8
3	—	—	1.00	0.29	0.33	0.36	0.41	0.37	0.44	0.22	4
4	—	—	—	1.00	0.30	0.31	0.35	0.31	0.38	0.20	5
5	—	—	—	—	1.00	0.37	0.40	0.35	0.41	0.21	7
6	—	—	—	—	—	1.00	0.44	0.39	0.46	0.25	5
7	—	—	—	—	—	—	1.00	0.47	0.55	0.27	8
8	—	—	—	—	—	—	—	1.00	0.50	0.25	5
9	—	—	—	—	—	—	—	—	1.00	0.30	9
10	—	—	—	—	—	—	—	—	—	1.00	2
<b>Summer 2007 (N = 156)</b>											
1	1.00	0.16	0.19	0.23	0.17	0.12	0.09	0.24	0.17	0.11	2
2	—	1.00	0.19	0.21	0.35	0.30	0.37	0.32	0.34	0.33	8
3	—	—	1.00	0.19	0.29	0.27	0.20	0.32	0.30	0.20	4
4	—	—	—	1.00	0.23	0.19	0.19	0.17	0.14	0.14	5
5	—	—	—	—	1.00	0.16	0.31	0.29	0.29	0.35	7
6	—	—	—	—	—	1.00	0.29	0.31	0.34	0.19	5
7	—	—	—	—	—	—	1.00	0.30	0.36	0.26	8
8	—	—	—	—	—	—	—	1.00	0.38	0.30	5
9	—	—	—	—	—	—	—	—	1.00	0.29	9
10	—	—	—	—	—	—	—	—	—	1.00	2

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