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ABSTRACT

From March through October of 1986, 44,453 students took the New Jersey College Basic Skills Placement Test (NJCBSPT) at the 30 New Jersey public colleges and 11 participating independent institutions of higher education. Designed to provide data for summary reports to the Board of Higher Education and to help colleges place already admitted students into first-level or remedial English and mathematics courses, the NJCBSPT has been administered for the past nine years. The system-wide proficiency results in the report do not always coincide with the percentages of students placed into remedial courses because the NJCBSPT is but one of the indicators the colleges use in making placements. For each of the last nine years, test results have been very stable and consistently disappointing. The proportion of students who are well prepared to begin college work in New Jersey continues to be far below a desirable level. Results are presented by statewide findings, college sectors, recent and non-recent high school graduates, perceptions vs. performance, demographic data, and outcomes of skills-deficient students in college. Five appendices include: a description of the NJCBSPT, NJCBSPT mean scaled scores for 1982-1986, a description of the proficiency levels established by the Basic Skills Council, items representative of those included on the NJCBSPT mathematics section, and a comparison of statewide self-reported student background data for 1982-1986. Five figures and 21 tables are included.(SM)

Results of the New Jersey College Basic Skills Placement Testing

Fall, 1986

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Department of Higher Education

June 19, 1987

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Report to the Board of Higher Education on the Results of the New Jersey College Basic Skills Placement Testing

Fall, 1986 Entering Freshmen

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EXECUTIVE SUMMARY

From March through October of the 1986 academic year, 44,453 students took the New Jersey College Basic Skills Placement Test (NJCBSPT) at the thirty New Jersey public colleges and eleven participating independent institutions. Designed both to provide data for this summary report to the Board of Higher Education and to assist colleges in placing already admitted students into remedial or first-level college English and mathematics courses, the NJCBSPT has now been administered in revised forms for each of the last nine years.

The system-wide proficiency results in this report may not necessarily coincide with the percentages of students placed by colleges into remedial courses because the NJCBSPT is but one of the indicators the colleges use in making placement decisions. The statewide proficiency categories reported here include the students tested at independent colleges. Since independent colleges are not required to use the NJCBSPT, no separate data is presented for their students.

For each of the last nine years, the test results have been both remarkably stable and consistently disappointing. Students are tested in Reading, Sentence Sense, Essay, Computation and Elementary Algebra. Proficiency in "verbal skills" is measured by a "Total English" composite score derived from the reading, sentence sense and essay tests. The students entering in the fall of 1986 were judged to have the following levels of proficiency in basic skills according to the standards set by the Basic Skills Council:

In verbal skills:

27% appeared proficient
41% appeared proficient in some areas, and
33% lacked proficiency

In computation:

30% appeared proficient
23% appeared proficient in some areas, and
47% lacked proficiency

In elementary algebra:

15% appeared proficient,
26% appeared proficient in some areas, and
60% lacked proficiency

The proportion of students who are well prepared to begin college work in New Jersey continues to be far below a desirable level.

Results by College Sector

As can be seen in the following table, the four-year state colleges and the university sectors traditionally enroll better prepared students than the county colleges, whose missions require an "open" admissions policy. The table below however, indicates that there are under-prepared students in every sector of higher education in New Jersey.

	APPEAR PROFICIENT %	APPEAR PROFICIENT IN SOME AREAS %	LACK PROFICIENCY %
COUNTY COLLEGES			
Verbal Skills	16	40	43
Computation	16	23	61
Elementary Algebra	5	18	77
STATE COLLEGES			
Verbal Skills	31	47	23
Computation	35	29	36
Elementary Algebra	15	39	46
RUTGERS			
Verbal Skills	61	32	7
Computation	70	19	11
Elementary Algebra	51	36	13
NJIT			
Verbal Skills	39	42	19
Computation	78	16	6
Elementary Algebra	66	30	4

Changes in the Distribution of Results

The large numbers of students tested statewide through the Basic Skills program tend to reduce the likelihood of significant change in the size of the reported proficiency categories unless a major demographic shift or educational improvement were to occur. For example, if a major portion of the approximately 38% of recent high school graduates who go to colleges outside of New Jersey were to elect to stay in-state, the Council would expect to see some upward movement in the "appear proficient" category.

Even though the statewide proficiency categories show little change over time, there are two related shifts in the pattern of proficiencies that appear meaningful. The first shift is a slight improvement in the Elementary Algebra proficiency level of those recent high school graduates who reported taking four years of high school mathematics. The second shift is an improvement in the size of the "appear proficient" in the Elementary Algebra category of the test takers at Rutgers and NJIT. The "appear proficient" category at Rutgers increased by eight percentage points (from 43% to 51%) and at NJIT it increased by fourteen percentage points (from 52% to 66%).

Results for Recent High School Graduates

Students who graduated in the spring of 1986 and were admitted to New Jersey colleges for the fall of 1986 made up 62% (27,447) of the test-takers. The pattern of proficiencies for these students is similar to that of the total population tested:

In verbal skills:

29% appeared proficient
43% appeared proficient in some areas, and
28% lacked proficiency

In computation:

36% appeared proficient
25% appeared proficient in some areas, and
39% lacked proficiency

In elementary algebra:

20% appeared proficient
33% appeared proficient in some areas, and
46% lacked proficiency

Again, the proficiency levels of recent high school graduates tested at our colleges have been both stable over time and far below what is desired by the public colleges.

Toward Better Skills Preparation

In previous years the Basic Skills Council has noted the long term intractability of the basic skills problem. Many colleges are burdened with providing remedial instruction for large number of inadequately prepared students. Yet with a public policy of open access in the community colleges and a commitment to a percentage of special admissions for educationally disadvantaged students in the four year institutions, there is little likelihood that the need to provide basic skills courses will disappear.

The Council believes that one approach to improvement of the basic skills of our college freshman is to make clear the seriousness of our educational deficiencies not only to the collegiate community but also to young, "middle school" students and to those in a position to influence the quality of schooling even before high school.

This report and individual student results are mailed annually to each high school principal. To communicate more directly to eighth and ninth grade students, a special publication, "FUTURES" is being widely disseminated to schools, school boards and parents in New Jersey. "FUTURES" stresses to young students the need for skills preparation, the need for planning and the need to keep open the doors for later college and career choices by electing and following through on courses that "make high school count."

INTRODUCTION

The New Jersey Basic Skills Assessment Program was designed in 1978 with two purposes. First, it was intended to generate reports to the Board of Higher Education on the status of basic skills (reading, writing, computation and elementary algebra) preparedness of the entering freshman class in public colleges and universities. The second, and equally important purpose was to provide placement information to aid colleges in placing students into appropriate courses during the freshman year. These dual purposes remain central to the nature of the program.

"Basic Skills" refers to those skills of thought and communication that an individual needs not only to take advantage of the opportunities offered by a college education but also to become a fully participating member of society. These are not the minimal "coping skills" or "life skills" which many consider essential to mere survival (e.g., balancing a checkbook, reading a magazine, filling out a job application). Rather, the "basic skills" of reading, writing, and mathematics are essential for thinking, learning, and succeeding within the context of a college curriculum. They are fundamental building blocks which underlie all college-level learning and which the Council believes are required for full participation in our society.

In 1978, the Basic Skills Council,[1] in its first report to the Board of Higher Education, defined and clarified what it meant by "basic skills":

> By "basic skills" the Council means the tools of intellectual discourse used in common by participating members of all academic communities. These tools are the language of words and the language of mathematics. Students need these tools to extract information, to exercise and develop the critical faculties of the mind, and to express thoughts clearly and coherently.

---

[1]The New Jersey Basic Skills Council is an advisory group of twelve faculty and administrators drawn from each of the college sectors in the state of New Jersey.

Without them learning is impaired, communication is imprecise, understanding is impossible. A test of "basic skills," therefore, is a test to determine whether an individual has developed the practical working skills of verbal and mathematical literacy needed to take advantage of the learning opportunities that colleges provide.

To define "basic skills" in this way is not to deny the validity of other modes of communication--within the artistic realm of discourse, for instance, the languages of music, motion, image, color, light, and texture express a universe of perceptions, feelings, and emotions which cannot be expressed adequately by words and numbers and logic alone. Nor is the Council's definition of the "basic skills" inimical to the value of diversity. We are, to the contrary, exceedingly sensitive to the differences between colleges: differences in their students, differences in their curricula and pedagogical philosophies; differences in their missions. But in one respect all colleges are identical: their ultimate purpose is to foster learning. The Council asserts unequivocally that the "basic skills" of reading, writing, and mathematics are a prerequisite to learning at the college level. If the possession of these skills is "standardization," we believe that standardization in this sense is good.

The Basic Skills Council continues to subscribe to this definition which is made concrete each year in the development of the NJCBSPT.

Nature of the Test

The NJCBSPT is a three hour and twenty minute examination consisting of an essay and four multiple choice sections: Reading Comprehension, Sentence Sense, Computation, and Elementary Algebra (see Appendix A for a more detailed description of the NJCBSPT). The test is required of all freshmen, full and part-time, entering New Jersey public colleges. In addition, eleven independent colleges in the state voluntarily administer the NJCBSPT to their entering freshmen.

A new form of the NJCBSPT is developed each year and is statistically equated to the previous forms. The scores are reported in standard score format so as to preserve comparability from year to year. See Appendix B for data on standard score means and standard deviations for each test section over the last five years.

The NJCBSPT was developed by the Basic Skills Council and first administered to freshmen entering public colleges in the Fall of 1978. Since then, more than 500,000 students have taken the exam. Studies performed at both the state level and at local colleges have confirmed that the New Jersey College Basic Skills Placement Test is both reliable and valid (information on NJCBSPT publications and reports can be found on the inside back cover of this booklet). A technical analysis monograph on the NJCBSPT's statistical properties is provided by ETS each year and is available upon request. The test measures skills that students entering college should have. Indeed the Basic Skills Council believes that the level of skills in reading, writing, and mathematics tested by the NJCBSPT is, at least, minimal for all students graduating from high school whether or not they intend to enroll in college.

The NJCBSPT is a criterion referenced examination. The test questions address specific skills (such as understanding the main idea in a reading passage; writing in an organized fashion; solving algebraic equations, etc.) which are judged as the minimum necessary to begin college work. Adequate knowledge of such skills yields high scores but superior preparation can not be discerned from the test scores. The distribution of scores on the multiple choice sections of the test is not "normal" in the statistical sense. Rather, the score distribution exhibits a marked negative skew.

The purpose of the test is placement at levels at and below the first-level college courses. It is designed to be relatively easy for well prepared students but to discriminate among under prepared students thus affording colleges the needed range of scores to facilitate placement at several remedial levels of reading, writing, computation and elementary algebra.

A new version of New Jersey College Basic Skills Placement Test is issued in March of each year, and colleges administer the test locally, on their own schedules, through February of the following year.

The student answer sheets (and computer data tapes if applicable) are sent to the Educational Testing Service for scoring and data analysis under contract with the Department of Higher Education. Students are tested only after admission to college and the results of the tests are used, in conjunction with other information, for initial placement in English and mathematics courses. Proficiency categories are defined by the Basic Skills Council but individual institutions set their own policy on appropriate student placement using NJCBSPT test scores and other available information. The Council has consistently recommended that placement be done not on the basis of one subtest score but by a combination of several test scores and other information such as the Scholastic Aptitude Test scores, Test of Standard Written English scores and high school record.

Reporting Format

Test results for typical large scale achievement and/or aptitude tests (such as the Scholastic Aptitude Test) are reported in terms of mean scaled scores and standard deviations. While these measures are useful for these types of instruments (and are included here for the NJCBSPT in Appendix B), the Basic Skills Council believes that for an instrument whose purpose is placement, the percentages of students who need, might need and do not need remediation are the most important data to transmit to the Board of Higher Education. Consequently, the results reported here are in terms of the percentages of students falling into three proficiency categories. The categories are "Lack Proficiency," "Appear Proficient in Some Areas" and "Appear to be Proficient." Descriptions of these proficiency levels as related to test performance can be found in Appendix C. The uppermost category, "Appear to be Proficient" is so named because the NJCBSPT does not contain a sufficient number of "difficult" items to ascertain with confidence that a given student is surely proficient in the skill area.

RESULTS

Statewide Findings

The proficiencies given in this report are based on the scores of 44,453 students tested at New Jersey public (and 11 private) colleges between March and October of 1986. This total is virtually the same as

the total tested (44,344) in 1985. Not all these students actually enrolled in New Jersey's colleges by the Fall of 1986. The difference between the numbers tested versus the numbers actually enrolling ranges from about 5% at Rutgers to as high as 40% in some of the community colleges.

The results of this year's testing differ little from previous years. Large proportions (in some sectors the majority) of students enter our colleges lacking proficiency in at least some areas of reading, writing, computation and elementary algebra. Table 1 and Figures 1-4 display the levels of proficiency exhibited by our entering freshmen in 1986. The "verbal skills" area is based on the NJCBSPT total English score, a composite of the reading, sentence sense, and essay subtests. Computation and elementary algebra are reported individually.

Table 1 displays the statewide results for each of the years 1982 through 1986. Over this time span, the stability of the results is striking. For each of the three proficiency categories it is rare that the percentages change by as much as four points over the five years displayed. This stability is due, in part, to the large number of students being tested. To effect a change of but one percentage point within a proficiency category, approximately 450 students must have higher or lower scores in a given year. The stacked bars in Figure 1 display this longitudinal consistency graphically. Furthermore, a similar pattern obtains for each year back to 1978--the first year of testing.

In 1986, in verbal skills:

33% of our entering students lacked proficiency
41% appeared proficient in some areas, and
27% appeared to be proficient

In Computation:

47% of our entering students lacked proficiency
23% appeared proficient in some areas, and
30% appeared to be proficient

In Elementary Algebra:

60% of our entering students lacked proficiency
26% appeared proficient in some areas, and
15% appeared to be proficient

Most public colleges and universities in the state use multiple criteria for placing students into either remedial or regular college-level courses. The system wide result of these practices is that all of the enrolled students in the "Lack Proficiency" categories and some of the students in the "Appear Proficient in Some Areas" category are identified for remedial courses. The 1986 basic skills assessment clearly indicates that the extent of remedial instruction that must be provided by our institutions has not diminished.

Results by College Sector

The percentages of students in each proficiency category for the four sectors of New Jersey public colleges (19 county colleges, nine state colleges, three campuses of Rutgers and the New Jersey Institute of Technology [NJIT]) also display the stability noted in the statewide results. Tables 2 through 5 present the results for the years 1982-1986 for each sector.

By virtue of their selective admissions processes, the state colleges, Rutgers and NJIT enroll higher percentages of students who "appear proficient" than do the county colleges who enroll students through an "open door" policy. Across the set of tables there is a slight increase in the "appear proficient" category in algebra and a slight decrease in the computation proficiency. This pattern must be interpreted cautiously. Yearly raw to scaled score conversions and consequent "rounding" of the percentages in the proficiency categories can have as much as a three percentage point effect on the size of the category. Consequently no trend should be inferred from these data until the percentage difference in the categories reaches five percentage points. By this criterion the only major change in Tables 2 through 5 is the improvement in elementary algebra proficiencies at Rutgers and NJIT.

Recent High School Graduates

Of the 44,453 students tested, 27,447 or 62% were "recent" high school graduates, i.e., those who graduated in 1986. (See Appendix B, Part 6.) These recent graduates are not evenly distributed among the college sectors. Of the total group 45% were tested at the two-year institutions, 25% were tested at the state colleges, 23% were tested at Rutgers and 2% were tested at NJIT. Moreover, the college sectors differ enormously in the percentages of their

test-takers who are recent graduates. Recent graduates as a percentage of test-takers, in descending order, were 95% at NJIT, 92% at Rutgers, 78% among the state colleges and 47% among the county colleges.

As in previous years, the proficiency percentages of recent graduates were inadequate to alleviate the need for remedial programs in every college sector. Table 6 displays the statewide results for recent high school graduates from 1982-1986. Figure 5 displays the following 1986 proficiency category breakdown:

In verbal skills:

29% appeared proficient
43% appeared proficient in some areas, and
28% lacked proficiency

In computation:

36% appeared proficient
25% appeared proficient in some areas, and
39% lacked proficiency

In elementary algebra:

20% appeared proficient
33% appeared proficient in some areas, and
46% lacked proficiency

These results, like the others in this report, have been stable from year to year. The only area which may have improved is the percentage of recent graduates in the "appear to be proficient" category in elementary algebra. This group increased from 16% in 1985 to 20% in 1986. While the absolute size of this category is hardly encouraging, the fact that it has improved is noteworthy. Of the 5,623 recent graduates who appeared proficient, 3,631 or 65% were tested at Rutgers and NJIT, 1,176 or 21% were tested at the state colleges and 586 or 10% were tested at the county colleges.

High School Mathematics and College Proficiency

The conventional mathematics preparation for college is three years of high school courses, including Algebra I, II and Geometry. Many course variations however, exist in high school curricula. Many students take a fourth year of high school mathematics; however, only a minority (about 11% of

the recent graduates tested) report taking calculus as their fourth year of study. Tables 7 and 8 display the relationship between high school mathematics curricula and subsequent proficiency levels on the NJCBSPT computation (Table 7) and elementary algebra (Table 8) tests. These data include only 1985 and 1986 New Jersey graduates who reported that their best language was English. The data, as in previous years, indicate that the groups of students who took less than four years of mathematics are highly unlikely to display proficiency in elementary algebra. For example, in Table 8, course category #2 includes the 1,485 students who took only one year of algebra in high school. Of these none scored high enough to "appear proficient" in elementary algebra. In category #5, of the student. who took the typical "college prep" program of Algebra I, II and Geometry, only 4% were proficient in elementary algebra. There were 6,580 students in this category and only 283 scored 25 or better out of 30 elementary algebra questions. In category #9, students who completed a "college prep" sequence that included calculus were much more likely to be proficient (70%) in elementary algebra.

The results in Tables 7 and 8 have been similar for the last five years. However there has been an improvement in the algebra proficiency percentages of the 1986 graduates who took the fourth year of mathematics (see Table 8, categories 8, 9 and 10). Three generic levels of preparation emerge from the course categories in these tables. First, students who have completed two (or fewer) years of mathematics show virtually no probability of being proficient in elementary algebra. Second, students who complete three years of mathematics (including geometry and trigonometry) have approximately a 20% probability of being proficient in elementary algebra. Finally, students who complete four years of mathematics through calculus have over a 70% probability of being proficient in elementary algebra. The NJCBSPT elementary algebra test is composed of direct questions on algorithmic skills typically learned in the ninth grade. Representative question types can be seen in Appendix D.

It should be noted that the study of calculus is not necessarily the causal variable in ensuring proficiency in algebra. It is probably true that only the best prepared students from the three-year high school math sequence elect calculus. However, students who take senior math courses other than calculus also display slightly higher algebra

proficiencies than the students completing only the three year sequence. The Council would like to see a strengthening of all mathematics instruction--from arithmetic through elementary algebra--so that more students will be sufficiently prepared to elect the fourth year of high school mathematics.

The New Jersey Algebra Project, directed by Dr. Charles Pine of Rutgers-Newark, is a direct outgrowth of the NJCBSPT experience and is jointly funded by the Department of Education and the Department of Higher Education. Each year for two years, the project has focused on teacher retraining and adoption of a new elementary algebra curriculum at the seventh, eighth and ninth grade levels. Pre-post test results have been impressive compared to control classes. Further, the passing rates of the ninth graders in the project on the high school proficiency test in math have been extraordinary.

Non-Recent High School Graduates

Thirty-eight percent of the students tested received their high school diplomas before 1986 (see Table 12). In fact, 20% of the statewide total of students tested received their diplomas prior to 1984. The great majority of the non-recent graduates (81%) were tested in the community colleges.

The test results for these "older" students are much lower then for the recent graduates. Table 9 displays the proficiency levels seen for these students from 1982 through 1986. Checking against the recent graduates' data in Table 6, one will find that 22% of non-recent graduates "appeared proficient" in verbal skills compared with 29% of the 1986 graduates. Only 19% of the non-recent graduates appeared proficient in computation compared with 36% of the 1986 graduates. In Elementary Algebra, 5% of the older students appeared proficient while 20% of the 1986 group appeared proficient. It should be understood that these comparisons are made not between graduating classes from year to year but between the current year's class and older students who, for a variety of reasons, arrived at the doors of our colleges one or more years later than is "traditional."

Perceptions vs. Performance

Data on gender, enrollment status, year of graduation, type of high school program, class rank, courses taken in high school and perceptions of

personal ability appear in Tables 10 through 21 and Appendix E. These data are self-reported by the students and consequently can contain selective distortions based on student self-image. For example, in Table 21, 42% of the statewide population considered themselves "Above Average in Mathematical Ability" and 84% consider themselves "Average or Above." Yet our proficiency data indicate that only 15% of these students appear proficient in ninth grade algebra. Only a third of the students "Want Help to Improve" in mathematics.

Half of the students, 50%, felt themselves to be "Above Average in Written Expression" and only 4% felt they were "Below Average." The test results indicate that 34% lack proficiency in verbal skills. The gap between students' perception of their math and verbal abilities and their actual proficiency as judged by the test scores is distressingly wide. Students often arrive on campus feeling that they are prepared for freshman courses only to be shocked by placement into one or more remedial courses.

Demographic Information

The background information provided by students who take the NJCBSPT yields a snapshot of the cohort of students coming into New Jersey's higher education system. Some of the demographic data in Tables 10 through 21 may be surprising to those who have not followed changes in the enrollment patterns in higher education over the last years. The majority (54%) of students in the system are now female (Table 11). Only three quarters (74%) of the students expected to enroll full-time. Of the statewide total, only 61% of the students took a traditional "academic high school program" before coming to college (Table 13).

Over the last five years a consistent 5% of the test takers reported that English was not their best language and 15% said a language other than English was spoken at home (Table 18). The Basic Skills Council's policy is to defer the testing of students for whom English is a second language until they complete their English instruction. The consistency of the 5% figure for "ESL" test takers indicates that our colleges have not yet as a group felt the increased proportion of ESL students that would be predicted from the increased proportions of such persons in the general population.

Outcomes of Skills-Deficient Students in College

This report is one of a series that the Basic Skills Council presents to the Board of Higher Education. The sequel to the test results is the Report on the Character and Effectiveness of Remedial Programs which is an analysis of the outcomes of the students who are placed into the 119 remedial programs in New Jersey's public colleges and universities. The data in the "Effectiveness Report" are collected after two years have passed. Many severely deficient students require three to four semesters to complete their remedial work. The outcomes data pertaining to the students tested for this report will be collected in the summer of 1988.

Reports on previous two-year cohorts have indicated that for those students who complete their college's prescribed remedial sequence, their "successful survival rate" (percentage of retention with a "C" average), was comparable to non-remedial students. In contrast, the successful survival rates of students who did not complete remediation were only about a third of those of students who completed remediation.

FIGURE 1

Levels of Student Proficiency
1982-1986 Statewide

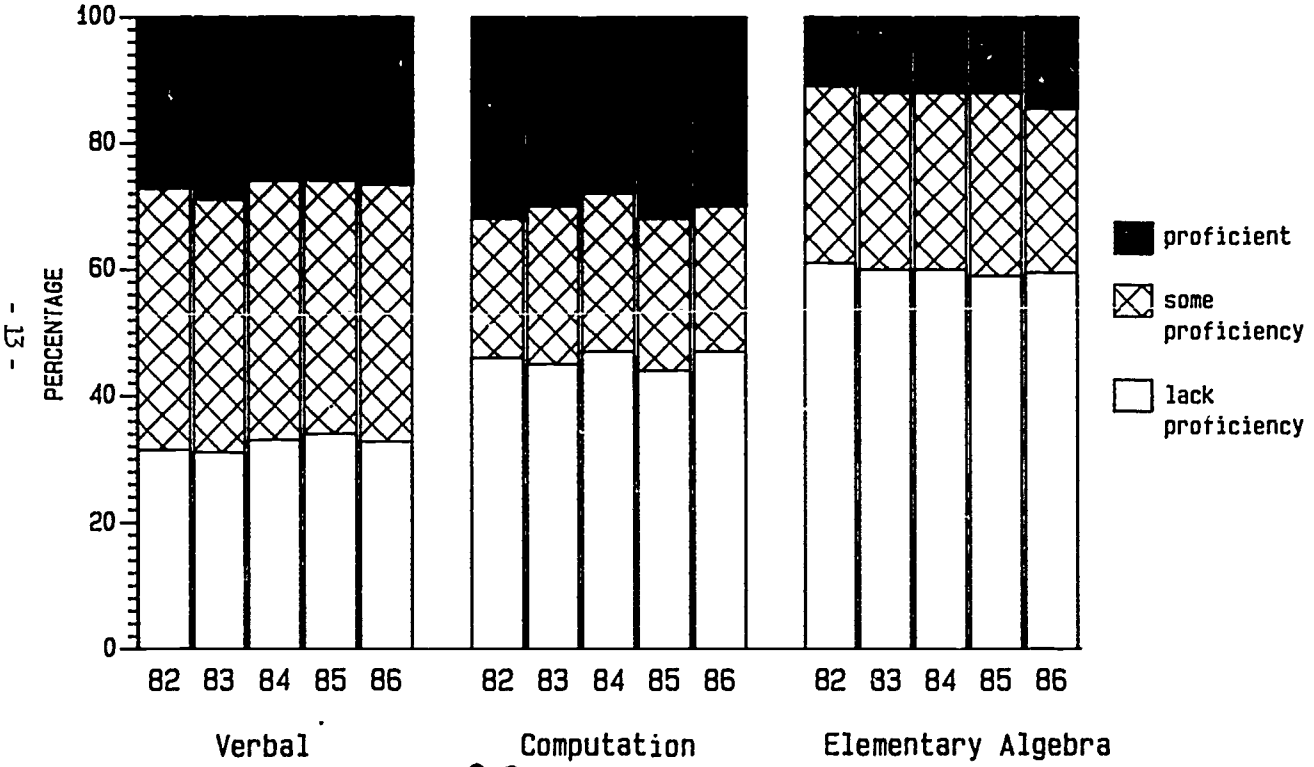
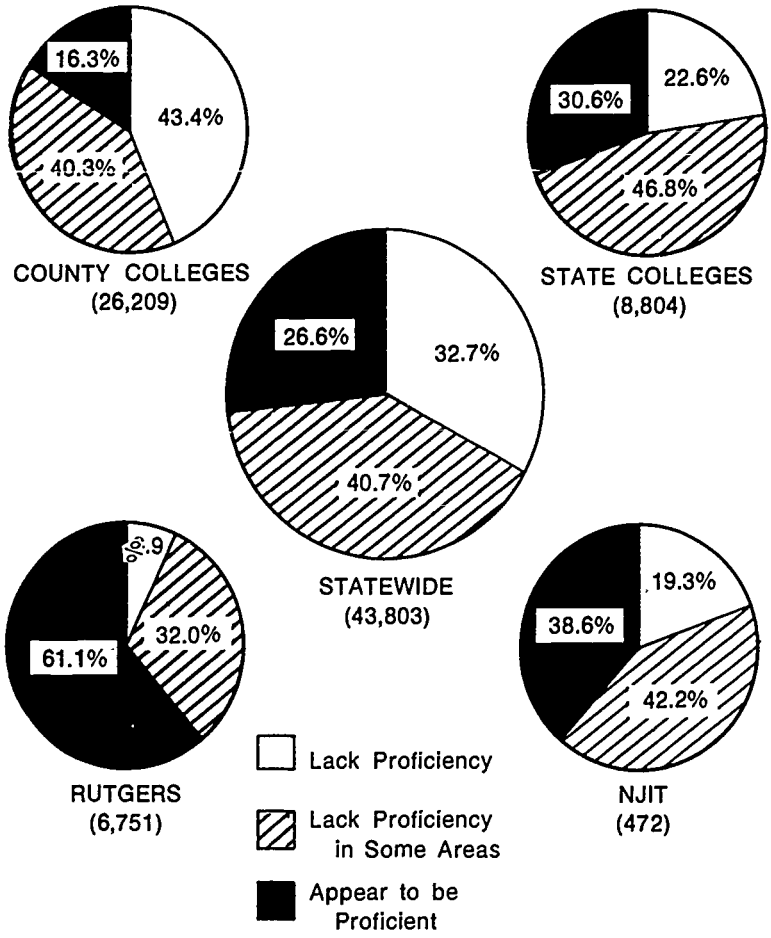


FIGURE 2

Levels of Student Proficiency by Sector
Fall 1986

Verbal*



*Based on Total English composite score (Reading Comprehension, Sentence Sense and Essay).

FIGURE 3

Levels of Student Proficiency by Sector
Fall 1986

Computation

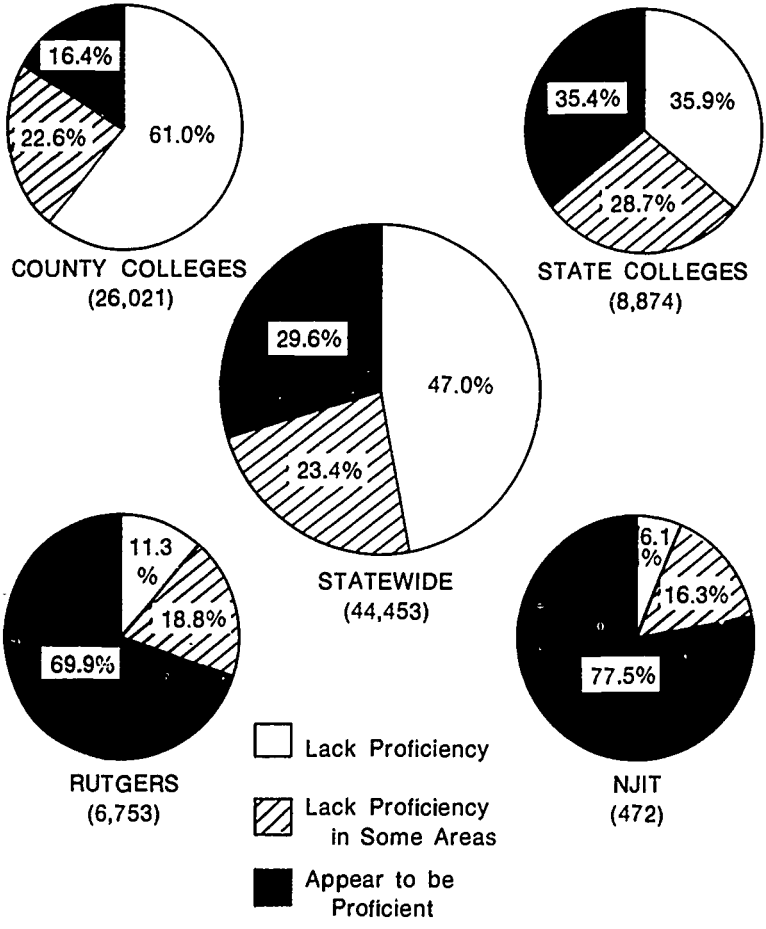


FIGURE 4

Levels of Student Proficiency by Sector
Fall 1986

Elementary Algebra

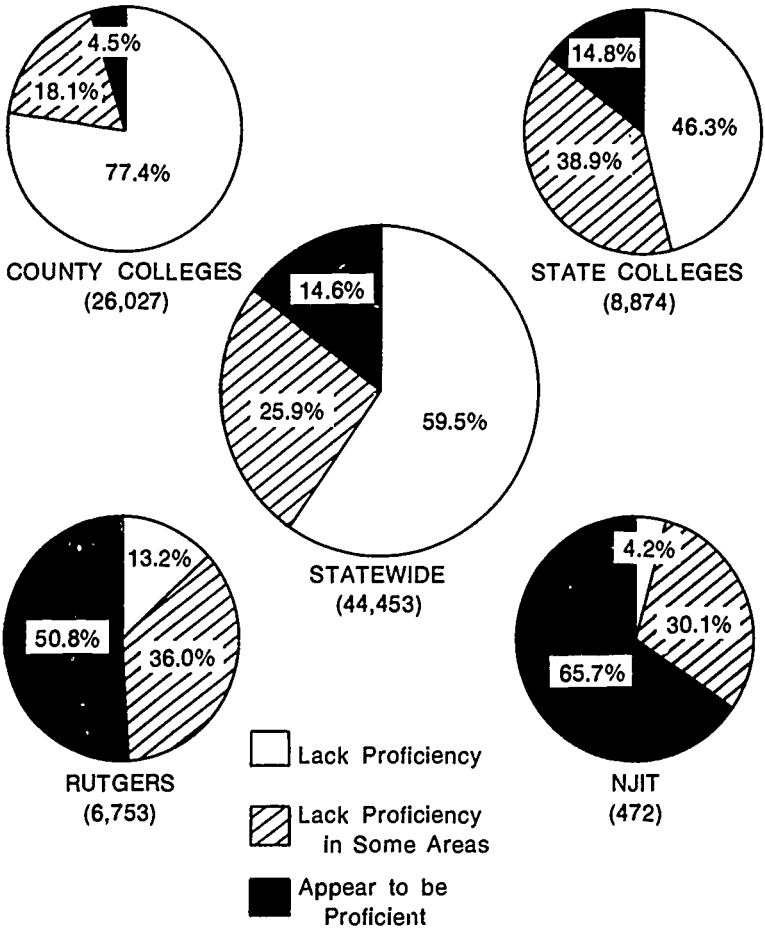
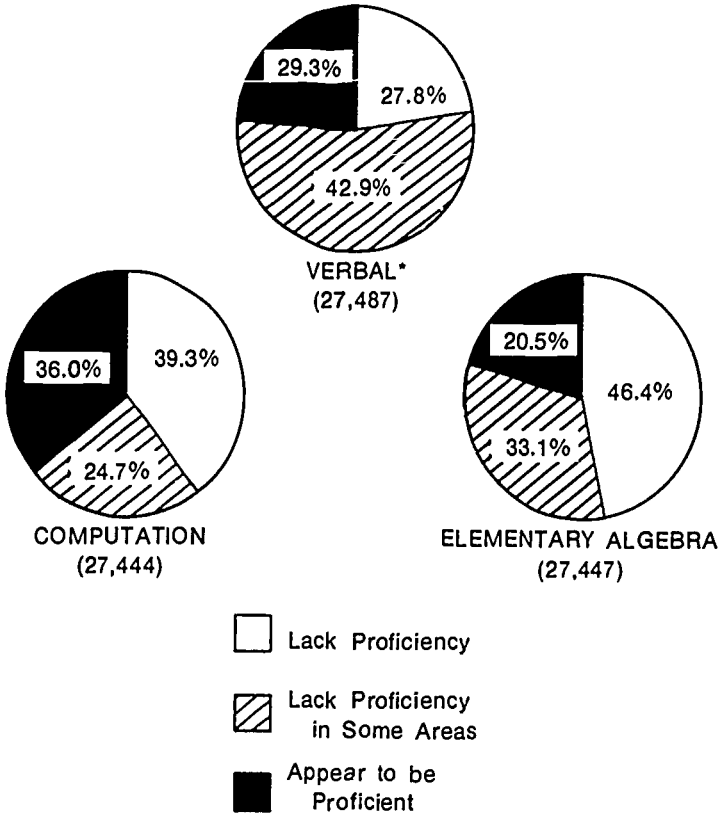


FIGURE 5

Levels of Student Proficiency by Skill Area Recent High School Graduates

Fall 1986



*Based on Total English composite score (Reading Comprehension, Sentence Sense and Essay).

TABLE 1*

Comparison of Statewide Test Results[1]

1982 - 1986

	1982		1983		1984		1985		1986	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	15,828	31	15,800	31	15,423	33	14,955	34	14,307	33
Appear Proficienct in Some Areas	20,900	41	20,587	40	18,899	41	17,852	40	17,834	41
Appear to be Proficient	13,740	27	14,442	29	11,853	26	11,376	26	11,662	27
COMPUTATION										
Lack Proficiency[2]	23,291	46	23,120	45	21,806	47	19,352	44	20,878	47
Appear Proficienct in Some Areas	11,259	22	12,606	25	11,481	25	10,679	24	10,404	23
Appear to be Proficient	16,585	32	15,595	30	13,178	28	14,313	32	13,171	30
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	31,220	61	30,607	60	27,703	60	26,087	59	26,444	60
Appear Proficiency in Some Areas	14,395	28	14,398	28	12,930	28	13,069	29	11,499	26
Appear to be Proficient	5,520	11	6,316	12	5,832	12	5,188	12	6,510	15

*Includes students who may not have enrolled in college after being tested. Independent college students are included in the statewide totals.

[1]See Appendix D for a description of proficiency categories.

[2]Includes those students not attempting this portion of the test.

TABLE 2

Comparison of Sector Test Results[1]
County Colleges

1982 - 1986

	1982		1983		1984		1985		1986	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	12,455	41	12,749	42	12,323	44	11,732	45	11,370	43
Appear Proficient in Some Areas	12,183	40	12,290	40	11,192	40	10,414	40	10,575	40
Appear to be Proficient	5,634	19	5,472	18	4,549	16	4,069	16	4,264	16
COMPUTATION										
Lack Proficiency[2]	17,523	58	17,806	58	16,905	60	15,121	58	15,866	61
Appear Proficient in Some Areas	6,472	21	7,277	24	6,592	23	6,208	24	5,892	23
Appear to be Proficient	6,385	21	5,594	18	4,694	17	4,960	19	4,263	16
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	23,321	77	23,413	76	21,404	76	20,140	77	20,137	77
Appear Proficienct in Some Areas	5,807	19	6,000	20	5,591	20	5,197	20	4,718	18
Appear to be Proficient	1,252	4	1,264	4	1,196	4	951	4	1,166	5

[1]See Appendix D for a description of proficiency categories

[2]Includes those students not attempting this portion of the test

TABLE 3

Comparison of Sector Test Results[1]
State Colleges

1982 - 1986

	1982		1983		1984		1985		1986	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	2,342	21	2,109	20	2,152	22	2,156	24	1,986	23
Appear Proficient in Some Areas	5,060	45	4,787	44	4,526	47	4,303	47	4,124	47
Appear to be Proficient	3,823	34	3,911	36	2,953	31	2,710	30	2,694	31
COMPUTATION										
Lack Proficiency[2]	3,948	35	3,621	33	3,473	36	2,897	31	3,185	36
Appear Proficient in Some Areas	2,961	26	3,280	30	3,011	31	2,743	30	2,545	29
Appear to be Proficient	4,419	39	4,080	37	3,283	34	3,597	39	3,144	35
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	5,535	49	5,035	46	4,546	47	4,110	44	4,108	46
Appear Proficient in Some Areas	4,573	40	4,572	42	4,038	41	4,153	45	3,455	39
Appear to be Proficient	1,220	11	1,374	13	1,183	12	974	11	1,311	15

[1]See Appendix D for a description of proficiency categories

[2]Includes those students not attempting this portion of the test

TABLE 4

Comparison of Sector Test Results[1]
Rutgers

1982 - 1986

	1982		1983		1984		1985		1986	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	528	9	395	6	399	7	466	7	465	7
Appear Proficient in Some Areas	2,401	39	1,885	30	1,956	33	2,167	33	2,161	32
Appear to be Proficient	3,279	53	3,959	64	3,486	60	3,912	60	4,125	61
COMPUTATION										
Lack Proficiency[2]	787	13	624	10	577	10	596	9	764	11
Appear Proficient in Some Areas	1,125	18	1,134	18	1,177	20	1,214	18	1,269	19
Appear to be Proficient	4,307	69	4,493	72	4,102	70	4,740	72	4,720	70
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	1,109	18	864	14	738	13	878	13	894	13
Appear Proficient in Some Areas	2,782	45	2,447	39	2,291	39	2,863	44	2,429	36
Appear to be Proficient	2,328	37	2,940	47	2,827	48	2,809	43	3,430	51

[1]See Appendix D for a description of proficiency categories

[2]Includes those students not attempting this portion of the test

TABLE 5

Comparison of Sector Test Results[1]
NJIT

1982 - 1986

	1982		1983		1984		1985		1986	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	109	15	87	15	106	20	115	23	91	19
Appear Proficient in Some Areas	313	43	250	42	204	38	216	43	199	42
Appear to be Proficient	300	42	262	44	231	43	166	33	182	39
COMPUTATION										
Lack Proficiency[2]	32	4	27	5	43	8	27	5	29	6
Appear Proficient in Some Areas	79	11	80	13	91	17	70	14	77	16
Appear to be Proficient	611	85	492	82	407	75	400	80	366	78
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	33	5	23	4	31	6	22	4	20	4
Appear Proficient in Some Areas	270	37	212	35	208	38	215	43	142	30
Appear to be Proficient	419	58	364	61	302	56	260	52	310	66

[1]See Appendix D for a description of proficiency categories

[2]Includes those students not attempting this portion of the test

N=472

TABLE 6

Comparison of Statewide Results
for
Recent High School Graduates[1]
1982 - 1986

	1982		1983		1984		1985		1986	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	8,066	26	8,424	26	8,289	29	7,977	29	7,637	28
Appear Proficient in Some Areas	14,038	45	13,716	43	12,548	44	11,977	43	11,795	43
Appear to be Proficient	9,004	29	9,896	31	7,943	28	7,837	28	8,057	29
COMPUTATION										
Lack Proficiency[2]	12,398	39	12,132	38	9,189	38	9,667	35	10,774	39
Appear Proficient in Some Areas	7,500	23	8,493	26	6,549	27	6,965	26	6,777	25
Appear to be Proficient	12,066	38	11,611	36	8,303	35	10,639	39	9,893	36
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	16,031	50	15,442	48	11,258	47	12,652	46	12,739	46
Appear Proficient in Some Areas	11,411	36	11,439	35	8,874	37	10,280	38	9,085	33
Appear to be Proficient	4,522	14	5,355	17	4,003	16	4,389	16	5,623	20

[1]For each year, the most recent high school graduates are those who graduated the Spring prior to their enrollment in college

[2]Includes those students not attempting this portion of the test

TABLE 7

Relationship Between Mathematics Courses Completed in High School and the Computation Proficiency[1] of the Students Tested: 1985 vs. 1986, New Jersey High School Graduates Only[2]

Course Category	1986 Total No.	Lack Proficiency 1986 No.	Lack Proficiency 1985 %	Lack Proficiency 1986 %	Appear Proficient In Some Areas 1986 No.	Appear Proficient In Some Areas 1985 %	Appear Proficient In Some Areas 1986 %	Appear to be Proficient 1986 No.	Appear to be Proficient 1985 %	Appear to be Proficient 1986 %
1. Business Math or General Math	1186	1097	88	93	71	10	6	18	2	2
2. Algebra I	1485	1201	73	81	235	21	16	49	6	3
3. Algebra I & Geometry	2694	1897	63	70	608	27	23	189	10	7
4. Algebra I & II	661	437	61	66	165	29	25	59	10	9
5. Algebra I, Geometry & Algebra II	6580	2949	37	45	2237	36	34	1394	28	21
6. Trigonometry (No Senior Math)	4737	881	14	19	1399	28	30	2457	58	52
7. Senior Math (No Trigonometry)	918	152	14	17	285	25	31	481	61	52
8. Algebra I & II Geometry & Trigonometry	1415	125	7	9	338	21	24	952	72	67
9. Calculus (No Senior Math)	2606	109	2	4	305	12	12	2192	85	84
10. Senior Math & Calculus	629	21	2	3	64	9	10	544	89	87
Overall	22911	7669	35	35	5764	26	26	8821	40	40

[1]See Appendix C for a description of proficiency categories.

[2]Recent high school graduates are those who graduated the spring prior to their enrollment in college. Limited-English-Proficient students are excluded.

TABLE 8

Relationship Between Mathematics Courses Completed in High School and the Elementary Algebra Proficiency[1] of the Students Tested: 1985 vs. 1986, New Jersey High School Graduates Only[2]

Course Category	1986 Total No.	Lack Proficiency 1986 No.	Lack Proficiency 1985 %	Lack Proficiency 1986 %	Appear Proficient In Some Areas 1986 No.	Appear Proficient In Some Areas 1985 %	Appear Proficient In Some Areas 1986 %	Appear to be Proficient 1986 No.	Appear to be Proficient 1985 %	Appear to be Proficient 1986 %
1. Business Math or General Math	1186	1173	99	99	11	2	1	2	0	0
2. Algebra I	1485	1416	94	95	69	5	5	0	0	0
3. Algebra I & Geometry	2694	2457	89	91	233	11	9	4	0	0
4. Algebra I & II	661	501	71	76	151	28	23	9	1	1
5. Algebra I, Geometry & Algebra II	6580	3544	50	54	2753	47	41	283	3	4
6. Trigonometry (No Senior Math)	4757	1033	20	22	2547	60	54	1157	20	24
7. Senior Math (No Trigonometry)	918	202	18	22	499	62	54	217	21	24
8. Algebra I & II Geometry & Trigonometry	1415	129	9	9	662	55	47	624	36	44
9. Calculus (No Senior Math)	2606	91	3	4	682	35	26	1833	62	70
10. Senior Math & Calculus	629	23	3	4	122	31	19	484	67	77
Overall	22911	10569	45	46	7729	39	34	4613	16	20

[1]See Appendix C for a description of proficiency categories.

[2]Recent high school graduates are those who graduated the spring prior to their enrollment in college. Limited-English-Proficient students are excluded.

TABLE 9*

Comparison of Test Results
Of Non-Recent Graduates[1]

1982 - 1986

	1982		1983		1984		1985		1986	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	7,762	40	7,376	40	7,134	41	6,978	43	6,670	41
Appear Proficienct in Some Areas	6,862	35	6,671	36	6,351	37	5,885	36	6,041	37
Appear to be Proficient	4,736	24	4,546	24	3,910	22	3,539	22	3,605	22
COMPUTATION										
Lack Proficiency[2]	10,893	57	10,988	58	12,617	56	9,685	57	10,104	59
Appear Proficienct in Some Areas	3,759	20	4,113	22	4,932	22	3,694	22	3,627	21
Appear to be Proficient	4,519	24	3,984	21	4,875	22	3,674	22	3,278	19
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	15,189	79	15,165	79	16,445	74	13,425	79	13,705	80
Appear Proficiency in Some Areas	2,985	16	2,959	16	4,056	18	2,789	16	2,414	14
Appear to be Proficient	998	5	961	5	1,832	8	799	5	887	5

*Includes students who may not have enrolled in college after being tested

[1]See Appendix D for a description of proficiency categories; "non-recent" includes all students who diploma was received prior to this year of testing.

[2]Includes those students not attempting this portion of the test

TABLE 10

Students Tested, Fall 1986, By Sex

Self-Reported Information	Statewide* #	%	County Colleges #	%	State Colleges #	%	Rutgers #	%	NJIT #	%
TOTAL NUMBER TESTED	44,453		26,355		8,874		6,753		472	
Male	19,491	44	11,437	43	3,810	43	3,152	47	379	80
Female	24,153	54	14,352	55	4,907	55	3,561	53	89	19
No Response	809	2	566	2	157	2	40	1	4	1

*Independent college students are included in statewide totals.

TABLE 11

Students Tested, Fall 1986, By Anticipated Enrollment Status

Self-Reported Information	Statewide* #	%	County Colleges #	%	State Colleges #	%	Rutgers #	%	NJIT #	%
TOTAL NUMBER TESTED	44,453		26,355		8,874		6,753		472	
Full-Time	32,781	74	16,516	63	7,574	85	6,465	96	464	98
Part-Time	9,909	22	8,297	31	1,211	14	273	4	4	1
No Response	1,763	4	1,542	6	89	1	15	--	4	1

*Independent college students are included in statewide totals.

TABLE 12

Students Tested, Fall, 1986 By Year of High School Graduation

Self-Reported Information	Statewide* #	%	County Colleges #	%	State Colleges #	%	Rutgers #	%	NJIT #	%
1986	27,780	62	12,614	48	6,963	78	6,189	92	449	95
1985	3,210	7	2,436	9	503	6	158	2	9	2
1984	1,665	4	1,299	5	236	3	59	1	3	1
Prior to 1984	8,751	20	7,285	28	1,018	11	319	5	5	1
Did Not Graduate	980	2	918	3	40	1	10	--	2	--
No Response	2,067	5	1,803	7	114	1	18	--	4	1

*Independent college students are included in statewide totals.

TABLE 13

Students Tested, Fall 1986, By High School Program

Self-Reported Information	Statewide* #	%	County Colleges #	%	State Colleges #	%	Rutgers #	%	NJIT #	%
Academic	26,970	61	12,220	46	6,793	77	6,142	91	402	85
General	8,493	19	6,454	24	1,276	14	418	6	51	11
Career	5,384	12	4,577	17	531	6	119	2	11	2
GED	1,290	3	1,111	4	122	1	35	--	2	--
Other	536	1	440	2	60	1	22	--	2	--
No Response	1,780	4	1,553	6	92	1	17	--	4	1

*Independent college students are included in statewide totals.

TABLE 14

Students Tested, Fall 1986, By Self-Reported High School Rank

Self-Reported Information	Statewide*		County Colleges		State Colleges		Rutgers		NJIT	
	#	%	#	%	#	%	#	%	#	%
Highest Tenth	4,011	9	901	3	746	8	2,092	31	125	27
Second Tenth	5,762	13	1,967	8	1,384	16	1,996	30	154	33
Second Fifth	9,644	22	4,719	18	2,615	30	1,688	25	125	27
Middle Fifth	17,024	38	12,151	46	3,230	36	817	12	59	13
Fourth Fifth	3,846	9	3,075	12	540	6	74	1	3	--
Lowest Fifth	1,089	2	972	4	75	1	16	--	1	--
No Response	3,077	7	2,570	10	284	3	70	1	5	1

*Independent college students are included in statewide totals.

TABLE 15

Total Number of Years of English Studied in High School, Fall 1986

Self-Reported Information	Statewide* #	%	County Colleges #	%	State Colleges #	%	Rutgers #	%	NJIT #	%
One	784	2	692	3	69	1	14	--	0	0
Two	1,665	4	1,433	5	169	2	29	--	6	1
Three	2,717	6	2,234	9	306	3	110	2	11	2
Four	36,709	83	19,848	75	8,135	92	6,515	97	445	94
No Courses	379	1	311	1	37	--	22	--	0	0
No Response	2,199	5	1,837	7	158	2	63	1	10	2

*Independent college students are included in statewide totals.

TABLE 16

Total Number of Years of Mathematics Studied in High School, Fall 1986

Self-Reported Information	Statewide*		County Colleges		State Colleges		Rutgers		NJIT	
	#	%	#	%	#	%	#	%	#	%
One	1,269	3	1,112	4	114	1	28	--	0	0
Two	6,261	14	5,179	20	766	9	125	2	1	--
Three	12,772	29	8,096	31	2,942	33	1,110	16	23	5
Four	21,675	49	9,854	37	4,897	55	5,433	81	444	94
No Courses	468	1	377	1	43	1	28	--	0	0
No Response	2,008	5	1,737	7	112	1	29	--	4	1

*Independent college students are included in statewide totals.

TABLE 17

Mathematics Courses Taken in High School, Fall 1986 Students Tested

Self-Reported Information	Statewide** #	Statewide** %	County Colleges #	County Colleges %	State Colleges #	State Colleges %	Rutgers #	Rutgers %	NJIT #	NJIT %
General Math	7422	27	4581	37	1462	21	913	15	64	14
Business Math	3557	13	2397	19	654	9	270	4	19	4
Algebra I	23125	84	10002	81	6239	90	5118	83	396	89
Algebra II	20253	74	6851	56	5858	85	5887	95	421	94
Geometry	22838	83	8634	70	6379	92	6017	97	434	97
Trigonometry	11005	40	2355	19	2935	42	4657	75	375	84
Senior Academic	3791	14	761	6	975	14	1681	27	127	28
Calculus	3913	14	388	3	713	10	2417	39	232	52
No Response	143	1	118	1	14	.2	9	.1	0	0

*Percentages exceed 100 since students may take more than one math course in high school.

**Independent college students are included in statewide totals.

TABLE 18
Comparison of Background Data of Students Tested
Statewide
1982 - 1986
(By Percentages)

	1982	1983	1984	1985	1986
SEX					
Male	44	45	44	44	44
Female	54	54	54	54	54
No Response	2	1	2	2	2
ENROLLMENT STATUS					
Full-Time	77	78	75	74	74
Part-Time	21	21	22	22	22
No Response	2	4	2	5	4
HIGH SCHOOL PROGRAM					
Academic	61	62	61	62	61
General	18	18	19	18	19
Career	14	14	13	13	12
GED	4	4	3	3	3
Other	1	1	1	1	1
No Response	2	2	3	3	4
HIGH SCHOOL RANK					
Highest Fifth	22	25	21	22	22
Second Fifth	23	23	22	22	22
Middle Fifth	40	40	40	39	38
Fourth Fifth	8	8	9	9	9
Lowest Fifth	2	2	2	2	2
No Response	5	4	6	5	7
ENGLISH BEST LANGUAGE					
Yes	92	92	91	88	90
No	5	5	5	5	5
No Response	3	3	4	7	5
OTHER LANGUAGE SPOKEN AT HOME					
Yes	14	15	15	16	15
No	84	84	82	79	81
No Response	2	1	2	5	4

TABLE 18A

Comparison of Background Data of Students Tested
Statewide
1982 - 1986
(By Percentages)

	1982	1983	1984	1985	1986
NO. OF YEARS OF HIGH SCHOOL ENGLISH					
One	2	2	2	2	2
Two	4	4	4	4	4
Three	6	6	6	5	6
Four	83	84	83	81	83
No Courses	1	1	1	1	1
No Response	4	3	4	7	5
NO. OF YEARS OF HIGH SCHOOL MATH					
One	5	4	4	3	3
Two	16	16	15	14	14
Three	30	29	29	28	29
Four	46	47	48	48	49
No Courses	1	1	1	1	1
No Response	3	2	3	7	5
MATH COURSES TAKEN IN HIGH SCHOOL[1]					
General Math	36	37	36	33	37
Business Math	17	17	16	16	17
Algebra 1	71	72	71	69	75
Algebra 2	55	56	56	56	59
Geometry	63	65	64	64	68
Trigonometry	26	27	27	28	30
Senior Academic	10	10	10	10	10
Calculus	8	9	9	10	10
No Response	3	2	3	6	5

[1]Percentages exceed 100 since students may take more than one math course in high school

TABLE 19

Self-Reported Years of English Studied
In High School
By Mean Scaled Scores on the Verbal Tests
1984 - 1986

Years Studied	Number			TOTAL ENGLISH[1]			READING COMPREHENSION			ESSAY[2]			COMPOSITION[3]		
	1984	1985	1986	1984	1985	1986	1984	1985	1986	1984	1985	1986	1984	1985	1986
FOUR	38,598	35,935	36,709	165	165	165	162	163	163	7.3	7.4	7.3	166	167	166
THREE	2,622	2,459	2,717	158	159	159	156	157	157	6.3	6.5	6.4	160	161	160
TWO	1,894	1,425	1,665	156	156	157	154	154	155	5.8	6.1	6.0	158	158	158
ONE	1,014	782	784	151	151	153	149	149	152	5.1	5.5	5.4	153	153	154

[1]Total English is a composite score based on all reading and writing sections.

[2]Essay topics change yearly, therefore, mean scores can not be equated from year to year.

[3]Composition is a composite score based on Sentence Structure/Sense and Essay.

TABLE 20

Self-Reported Years of Mathematics Studied
In High School
By Mean Scaled Scores on the Mathematics Tests
1984 - 1986

Years Studied	Number			COMPUTATION			ELEMENTARY ALGEBRA		
	1984	1985	1986	1984	1985	1986	1984	1985	1986
FOUR	22,280	21,088	21,675	168	169	169	171	172	172
THREE	13,251	12,385	12,772	164	164	164	164	164	164
TWO	6,897	6,130	6,261	159	160	160	158	158	158
ONE	1,821	1,244	1,269	157	155	157	157	161	157

TABLE 21

Self-Reported Student Background Information
By Sector, Fall 1986

	County Colleges #	%	State Colleges #	%	Rutgers University #	%	NJIT #	%	STATE TOTAL #	%
Consider themselves above average in written expression	10,969	42	5,005	57	5,046	75	292	62	22,337	50
Consider themselves average in written expression	11,952	45	3,486	39	1,557	23	154	33	17,927	40
Consider themselves below average in written expression	1,431	5	234	3	106	2	20	4	1,844	4
Want help to improve writing	5,520	21	2,272	26	1,868	28	155	33	10,342	23
Want help to improve reading	2,764	11	1,025	12	783	12	67	14	4,908	11
Want help to improve study habits	8,723	33	3,089	35	2,045	30	164	33	14,675	33
Consider themselves above average in mathematical ability	8,313	32	4,216	48	4,973	74	429	91	18,694	42
Consider themselves average in mathematical ability	12,545	48	3,758	42	1,534	23	37	8	18,789	42
Consider themselves below average in mathematical ability	3,470	13	749	8	199	3	2	4	4,609	10
Want help to improve mathematics	9,493	36	3,054	34	1,815	27	131	28	15,227	34

APPENDIX A

Description of the New Jersey College Basic Skills Placement Test

One purpose of the NJCBSPT is to help determine which students admitted to college need remedial instruction in certain basic skills; that is, the test was designed to discover which of the entering students do not have the level of skills generally expected of college freshmen and deemed necessary for successful completion of their academic programs. Thus, the basic skills measured by the test are defined not as the skills necessary to survive in the world (e.g., filling out applications, reading directions on medicine bottles, or the like) but as the skills needed to read college textbooks, to write papers for class, to solve mathematical problems, and, indeed, to succeed in a technological society.

The portions of the NJCBSPT dealing with verbal skills yield the following scores:

1. Total English score, a composite score based on the Reading Comprehension, Sentence Sense, and Essay sections.
2. Reading Comprehension.
3. Sentence Sense.
4. Essay.
5. Composition, a composite score based on the Sentence Sense and Essay sections.

A more detailed explanation of the test can be found in Interpreting Scores on the New Jersey College Basic Skills Placement Test, and a more detailed explanation of the writing sample can be found in Scoring the Essays; both booklets are available from the Department of Higher Education (see page inside back cover).

Reading Comprehension (47 questions, 50 minutes)

The Reading Comprehension section of the test measures students' ability to understand a written text, to extract the main idea from the text, and to draw appropriate inferences from it. Most, but not

all, of the questions testing these skills are related to passages printed in the test book. The passages cover a variety of subjects and represent a variety of writing purposes and styles.

Students taking the test are expected to read the passages carefully, not merely skim them; they are expected to know what the text actually says, not merely what they think it might say. Close reading and attention to detail are expected, as is attention to tone. Students are expected to be able to generalize about the ideas in the passage and the method of their presentation. They are also expected to be able to identify ideas found in the passage when those ideas are stated in different words and to understand and identify the assumptions made by the author and the implications of the text.

For those NJCBSPT questions that are unrelated to passages, students are asked to identify the generalization that is supported by a group of statements or to identify the idea that best supports a given generalization.

Sentence Sense (40 questions, 35 minutes)

The Sentence Sense section uses two kinds of multiple-choice questions. The first requires students to identify faults in sentences and make appropriate corrections. The second asks students to rewrite sentences, much as they would do when editing their own writing.

The problems presented to the student for correction are concerned mainly with the structure and logic of sentences, not with grammar or punctuation. Questions deal with expressing ideas clearly and accurately, appropriately coordinating or subordinating ideas within sentences, and recognizing complete sentences. The types of questions used ask students either to identify problems and correct errors in sentences or to recast sentences to change structure or emphasis - tasks they might perform when they themselves write.

Essay (20 minutes)

In evaluating writing samples, the faculty members who serve as scorers take into consideration every aspect of the writing, from subject-verb agreement to organization of ideas, from use of the comma to appropriateness of examples, from spelling to style. Each sample receives two independent

scores on a six-point scale. The score reported for the essay is the sum of these two scores. Thus, the highest obtainable score is 12, and the lowest is 2. For further information on scoring, refer to the NJCBSPT publication "Scoring the Essay" (see inside back cover).

Computation (35 questions, 40 minutes)

This section of the test measures the ability to perform basic arithmetic operations and to apply the operations to the solution of problems that involve fundamental arithmetic concepts. The questions cover operations with whole numbers, operations with fractions, operations with decimals and percents, and arithmetic reasoning.

Elementary Algebra (35 questions, 40 minutes)

This section of the test measures the ability to perform basic algebraic operations and to apply the operations to the solution of problems that involve elementary algebraic concepts. It tests operations with real numbers, operations with algebraic expressions, and the ability to solve equations, inequalities, and word problems.

APPENDIX B
1 of 6
NJCBSPT Mean Scaled Scores
Statewide
1982 - 1986

	1982	1983	1984	1985	1986
Number of Students Tested	51,135	51,321	46,465	44,344	44,284
MEAN SCALED SCORES:					
Reading Comprehension (Standard Deviation)	163 (12.7)	163 (12.9)	161 (13.2)	161 (13.0)	161 (13.2)
Sentence Structure/Sense (Standard Deviation)	165 (11.5)	165 (11.5)	164 (11.6)	164 (11.6)	164 (11.6)
Essay (Standard Deviation)	6.9 (2.0)	6.5 (2.1)	7.0 (2.0)	7.1 (1.9)	7.1 (1.9)
Composition[1] (Standard Deviation)	165 (10.9)	165 (10.7)	165 (10.9)	165 (11.1)	165 (11.2)
Total English[2] (Standard Deviation)	164 (11.6)	164 (11.5)	163 (11.5)	163 (11.6)	164 (11.8)
Math Computation (Standard Deviation)	165 (10.7)	165 (10.5)	165 (10.5)	165 (10.5)	165 (10.5)
Elementary Algebra (Standard Deviation)	166 (11.7)	167 (11.8)	167 (11.6)	167 (11.7)	167 (11.9)

[1]Composition is a composite score based on Sentence Structure/Sense and Essay.

[2]Total English is a composite score based on all three reading and writing sections.

APPENDIX B
2 of 6
NJCBSPT Mean Scaled Scores
County Colleges
1982 - 1986

	1982	1983	1984	1985	1986
Number of Students Tested	30,380	30,677	28,191	26,288	26,322
MEAN SCALED SCORES:					
Reading Comprehension	160	159	158	158	158
(Standard Deviation)	(13.3)	(13.4)	(13.4)	(13.1)	(13.5)
Sentence Structure/Sense	162	162	161	161	161
(Standard Deviation)	(11.9)	(12.0)	(11.9)	(11.8)	(11.9)
Essay	6.5	6.0	6.6	6.7	6.6
(Standard Deviation)	(2.0)	(2.1)	(2.0)	(1.9)	(1.9)
Composition	162	162	162	162	162
(Standard Deviation)	(11.2)	(10.8)	(11.0)	(11.2)	(11.3)
Total English	161	161	160	160	160
(Standard Deviation)	(12.0)	(11.6)	(11.5)	(11.5)	(11.7)
Math Computation	162	162	162	162	162
(Standard Deviation)	(10.6)	(10.1)	(10.1)	(10.2)	(10.1)
Elementary Algebra	162	162	162	162	162
(Standard Deviation)	(10.2)	(9.9)	(9.7)	(9.8)	(9.8)

[1]Composition is a composite score based on Sentence Structure/Sense and Essay.

[2]Total English is a composite score based on all three reading and writing sections.

APPENDIX B
3 of 6
NJCBSPT Mean Scoled Scores
State Colleges
1982 - 1986

	1982	1983	1984	1985	1986
Number of Students Tested	11,328	10,981	9,767	9,237	8,817
MEAN SCALED SCORES:					
Reading Comprehension (Standard Deviation)	165 (11.3)	166 (11.0)	164 (11.6)	163 (11.7)	164 (11.8)
Sentence Structure/Sense (Standard Deviation)	167 (9.9)	168 (9.8)	167 (10.0)	167 (10.2)	167 (9.9)
Essay (Standard Deviation)	7.3 (1.8)	7.0 (1.9)	7.4 (1.8)	7.4 (1.7)	7.4 (1.7)
Composition (Standard Deviation)	168 (9.5)	168 (9.2)	168 (9.4)	167 (9.7)	167 (9.6)
Total English (Standard Deviation)	167 (10.0)	167 (9.7)	167 (9.9)	166 (10.1)	166 (10.2)
Math Computation (Standard Deviation)	167 (9.4)	168 (9.2)	167 (9.3)	168 (9.2)	168 (9.3)
Elementary Algebra (Standard Deviation)	168 (10.7)	169 (10.8)	169 (10.5)	169 (10.3)	169 (10.7)

[1]Composition is a composite score based on Sentence Structure/Sense and Essay.

[2]Total English is a composite score based on all three reading and writing sections.

APPENDIX B
4 of 6
NJCBSPT Mean Scaled Scores
Rutgers
1982 - 1986

	1982	1983	1984	1985	1986
Number of Students Tested	6,219	6,251	5,856	6,550	6,753
MEAN SCALED SCORES:					
Reading Comprehension	170	171	170	170	170
(Standard Deviation)	(8.5)	(8.0)	(8.6)	(8.6)	(8.7)
Sentence Structure/Sense	171	172	173	172	172
(Standard Deviation)	(8.6)	(7.1)	(7.1)	(7.2)	(7.3)
Essay	7.8	7.9	8.2	8.2	8.2
(Standard Deviation)	(1.6)	(1.7)	(1.6)	(1.5)	(1.5)
Composition[1]	171	173	173	173	173
(Standard Deviation)	(7.6)	(7.3)	(7.3)	(7.7)	(7.7)
Total English[2]	171	173	172	172	173
(Standard Deviation)	(7.7)	(7.4)	(7.6)	(8.0)	(8.0)
Math Computation	173	174	174	174	174
(Standard Deviation)	(7.3)	(6.8)	(6.8)	(6.7)	(7.0)
Elementary Algebra	177	179	179	179	179
(Standard Deviation)	(9.7)	(9.6)	(9.3)	(9.6)	(9.4)

[1]Composition is a composite score based on Sentence Structure/Sense and Essay.

[2]Total English is a composite score based on all three reading and writing sections.

APPENDIX B
5 of 6
NJCBSPT Mean Scaled Scores
NJIT
1982 - 1986

	1982	1983	1984	1985	1986
Number of Students Tested	722	599	541	497	472
MEAN SCALED SCORES:					
Reading Comprehension (Standard Deviation)	168 (10.2)	169 (10.2)	162 (11.5)	165 (12.0)	167 (10.4)
Sentence Structure/Sense (Standard Deviation)	170 (9.0)	170 (8.9)	169 (9.5)	168 (10.4)	169 (9.5)
Essay (Standard Deviation)	7.2 (1.7)	7.0 (1.9)	7.5 (1.9)	7.1 (1.8)	7.2 (1.6)
Composition[1] (Standard Deviation)	168 (8.8)	169 (8.8)	169 (9.6)	167 (10.2)	168 (9.2)
Total English[2] (Standard Deviation)	168 (9.2)	169 (9.2)	168 (10.3)	166 (10.7)	168 (9.7)
Math Computation (Standard Deviation)	175 (5.1)	176 (5.1)	175 (6.1)	175 (5.7)	176 (5.8)
Elementary Algebra (Standard Deviation)	182 (6.6)	183 (6.5)	181 (7.7)	182 (7.3)	183 (6.7)

[1]Composition is a composite score based on Sentence Structure/Sense and Essay.

[2]Total English is composite score based on all three reading and writing sections.

APPENDIX B
6 of 6
NJCBSPT Mean Scaled Scores
Statewide Comparison of Recent High School Graduates*
1982 - 1986

	1982	1983	1984	1985	1986
Number of Recent High School Graduates	31,964	32,236	28,466	27,291	27,447
Percent of Total Test Takers	63%	63%	61%	62%	63%
TOTAL ENGLISH					
Number Completing Test	31,621	31,538	28,401	27,262	27,156
Not Attempted	343	192	65	29	291
Mean Score	165	166	165	165	165
Standard Deviation	10.3	10.2	10.5	10.5	10.7
MATH COMPUTATION					
Number Completing Test	31,856	31,661	28,438	27,274	27,406
Not Attempted	108	69	28	17	41
Mean Score	166	167	167	167	167
Standard Deviation	9.9	9.6	9.8	9.7	9.8
ELEMENTARY ALGEBRA					
Number Completing Test	29,754	29,995	27,134	25,742	26,055
Not Attempted	2,210	1,735	1,332	1,549	1,392
Mean Score	169	169	169	169	170
Standard Deviation	11.4	11.5	...3	11.4	11.6

*For each year, the most recent high school graduates are those who graduated the spring prior to their enrollment in college.

APPENDIX C

A DESCRIPTION OF THE PROFICIENCY LEVELS ESTABLISHED BY THE BASIC SKILLS COUNCIL AS A GUIDE FOR COLLEGE PLACEMENT PROCEDURES

Based upon its understanding of the content and difficulty level of the test, and upon the recommendations of its advisory committees, the Council offers the following general propositions to assist in understanding the test results presented in this report.

Verbal Skills

For the purpose of this report, students who scored below 161 on Total English* were placed in the "Lack Proficiency" category. Those who fell in the 161-172 range on Total English were placed in the "Appear to be Proficient in Some Areas" category while those students above 172 on Total English "Appear to be Proficient." A more precise understanding of an individual student's scores can be achieved by considering the following.

In the Council's judgment, all students with essay scores of 2, 3 or 4, and those students with an essay score of 5 or 6 but fewer than 80 percent correct on either of the two multiple-choice tests, are seriously deficient in their use of written language. An essay score of 2, 3, or 4 indicates pronounced weakness in writing: in these essays the message is not always clear, the idea is either not developed or not logical, and the conventions of written language are usually not observed. An essay score of 5 or 6, together with fewer than 80 percent correct on one or both of the multiple-choice tests, indicates a need for help in following the conventions of written language, and in developing and comprehending an idea in a coherent manner.

Many students exhibit a pattern of performance that must be reviewed more carefully, since they probably require some assistance in one or more areas according to the requirements and standards of the individual colleges. Students in this category either did not demonstrate proficiency in one or more

*Total English is a composite score based on all three reading and writing sections

areas, or their essay and multiple choice scores may have exhibited a discrepancy. For example, a high essay score and a low sentence sense score is a pattern that bears examination. Essay scores of 5, 6 or 7 together with multiple-choice scores above 80 percent are "average" in that the essays tend to lack depth and coherence and, despite the multiple-choice scores, the writing samples may exhibit flaws in structure and/or language conventions. An essay score of 7 combined with scores of less than 80 percent correct on one or both of the multiple-choice tests indicates at best a marginal performance. An essay score of 8-12 combined with fewer than 80 percent correct on any one of the multiple-choice tests is a discrepant pattern, since the essay score indicates a range from above average to excellent, and the multiple-choice scores appear to contradict the essay score.

Students with essay scores of 8-12 and 80 percent correct on both multiple-choice tests seem to be proficient in the basic skills of reading and writing. The writers of these essays have control of both the language and the structures they are using; generally speaking, they can comprehend a relatively mature idea and develop it in standard English.

Computation

A scaled score of 164 or below (18 or fewer questions correct out of 30 on the 1986 test) indicates pronounced weaknesses in dealing with certain computational operations and, in particular, with problems involving percentages and decimals. Declining scores indicate progressively greater difficulty with operations involving fractions. Students scoring below 165 on the computation test are included in the category: "Lack Proficiency."

The range of scaled scores from 165 to 172 (19 to 24 questions correct) indicates greater familiarity with elementary computation but still shows definite weaknesses. The particular weaknesses of a student can be identified only by examining individual item responses. Students falling in the range of 165 to 172 on the computation test fall in the category: "Appear to be Proficient in Some Areas."

Students who achieve a scaled score of at least 174 (25 questions correct) seem to be proficient in the elementary computational skills measured by this test and fall in the "Appear to be Proficient" category.

Elementary Algebra

Students who achieve a scaled score of 166 or below (13 or fewer questions correct out of 30 on the 1986 test) lack any understanding of elementary algebra. Such students may possess a smattering of knowledge but have difficulty with a wide variety of elementary operations, and are not able in general to perform sustained operations involving a succession of simple steps. Students in this category ("Lack Proficiency") probably need to restudy elementary algebra from the beginning.

The particular difficulties of students who score in the scale range from 167 to 183 (14 to 25 questions correct) vary. They have some misconceptions, have some trouble dealing with equations involving letters rather than numbers, and probably cannot handle sustained operations well. The type of assistance or course work such students may require will depend on each student's background and can be determined by careful examination of the particular patterns of item responses. Students scoring in the range of 167 to 182 on elementary algebra are included in the "Appear to be Proficient in Some Areas" category.

Students who achieve a scaled score of 184 and above (25 or more questions correct) seem to have no widespread weaknesses in performing elementary algebraic operations and fall in the "Appear to be Proficient" category. They probably can do simple, sustained operations. The test, however, does not extend far enough in difficulty level to determine whether students scoring in this highest range are able to complete a more complex succession of simple operations.

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Students with essay scores of 8-12 and 80 percent correct on both multiple-choice tests seem to be proficient in the basic skills of reading and writing. The writers of these essays have control of both the language and the structures they are using; generally speaking, they can comprehend a relatively mature idea and develop it in standard English.

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Students who achieve a scaled score of 166 or below (13 or fewer questions correct out of 30 on the 1986 test) lack any understanding of elementary algebra. Such students may possess a smattering of knowledge but have difficulty with a wide variety of elementary operations, and are not able in general to perform sustained operations involving a succession of simple steps. Students in this category ("Lack Proficiency") probably need to restudy elementary algebra from the beginning.

The particular difficulties of students who score in the scale range from 167 to 183 (14 to 25 questions correct) vary. They have some misconceptions, have some trouble dealing with equations involving letters rather than numbers, and probably cannot handle sustained operations well. The type of assistance or course work such students may require will depend on each student's background and can be determined by careful examination of the particular patterns of item responses. Students scoring in the range of 167 to 182 on elementary algebra are included in the "Appear to be Proficient in Some Areas" category.

Students who achieve a scaled score of 184 and above (25 or more questions correct) seem to have no widespread weaknesses in performing elementary algebraic operations and fall in the "Appear to be Proficient" category. They probably can do simple, sustained operations. The test, however, does not extend far enough in difficulty level to determine whether students scoring in this highest range are able to complete a more complex succession of simple operations.

APPENDIX D

Items Representative of Those Included on the NJCBSPT, Mathematics Section
(Items are multiple choice in the actual test)

COMPUTATION

Item

1. $\begin{array}{r} 8.35 \\ \times\ 4.7 \\ \hline \end{array}$
2. $\frac{2}{5} + \frac{1}{2}$
3. $35.2 - 8.07 = ?$
4. If 6 pounds of cheese cost $8.04, how much will 4 pounds cost
5. $\frac{7}{8} \div \frac{3}{5}$
6. 30 percent of 200 = ?
7. $\frac{9}{20}$ expressed in decimal form is?
8. $\begin{array}{r} 7\frac{1}{8} \\ -\ 3\frac{1}{6} \\ \hline \end{array}$
9. $0.6\overline{)360}$
10. If the price of a $0.60 pad of paper is increased by 15 percent, what is the new price?
11. $\frac{\frac{8}{1}}{\frac{1}{4}} = ?$
12. 20 is 8 percent of what number?

ELEMENTARY ALGEBRA

Item

1. $10a - 8b - 3a + 2b = ?$
2. $(3x + 1)(5x - 1) = ?$
3. If $7x - 3 = 2$, then $x = ?$
4. If $4x = 9 - 7x$, then $x = ?$
5. The value of $y = 3x - 5x + 7$ when $x = -2$ is ?
6. $(3a + 4)^2 = ?$
7. If $6(x - 2) + 5 = 2x$, then $x = ?$
8. A factor of $x + 2x - 15$ is ?
9. $\frac{b^8}{b^4} = ?$
10. If $x - 2 =$, then $x = ?$
11. In the solution of the system of equations below, what is x?

    $3x - y = 11$
    $5x + 2y = 4$
12. If $ax = c - bx$, then $x = ?$

APPENDIX E

Comparison of Statewide
Self-Reported Student Background Information
1982 - 1986

	1982		1983		1984		1985		1986	
	#	%	#	%	#	%	#	%	#	%
Consider themselves above average in written expression	25,789	50	26,631	52	23,554	51	22,408	51	22,337	50
Consider themselves average in written expression	21,004	41	20,862	41	18,849	41	16,966	38	17,927	40
Consider themselves below average in written expression	2,135	4	2,062	4	1,906	4	1,588	4	1,844	4
Want help to improve writing	10,621	21	11,209	22	10,061	22	9,507	21	10,342	23
Want help to improve reading	5,766	11	5,511	12	5,028	11	4,592	10	4,908	11
Want help to improve study habits	15,435	30	16,327	32	14,603	31	13,525	31	14,675	33
Consider themselves above average in mathematical ability	21,648	42	22,499	44	20,029	43	18,963	43	18,694	42
Consider themselves average in mathematical ability	22,206	43	21,959	43	19,608	42	17,898	40	18,789	42
Consider themselves below average in mathematical ability	4,987	10	5,015	10	4,603	10	3,993	9	4,601	10
Want help to improve mathematics.	16,249	32	16,725	33	15,096	33	13,827	31	15,227	34

NJCBSPT Publications and Related Reports*

FUTURES: Making High School Count, A booklet prepared by the New Jersey Basic Skills Council, 1987

Student Information Bulletin 1987

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Interpreting Mathematics Scores on the New Jersey College Basic Skills Placement Test

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Report on the Effectiveness of Remedial Programs in New Jersey Public Colleges and Universities, Fall 1983 - Spring 1985, New Jersey Basic Skills Council, November 21, 1986

*Publications and reports are available from the Basic Skills Assessment Program, New Jersey Department of Higher Education, 225 West State Street, Trenton, NJ 08625.