

# **A Study of the Correlation between Grade 10 Math Performance and Course Performance**

## **Overview**

Texas Education Code Section 39.182(a)(6) mandates an evaluation of the correlation between student grades and student performance on state-mandated assessment instruments. To comply with this statute, the Student Assessment Division at the Texas Education Agency has conducted periodic studies to determine the relationship between students' classroom performance and their scores on statewide criterion-referenced assessments.

This report describes the most recent study, which compares the passing rates of grade 10 students on their spring 2008 Texas Assessment of Knowledge and Skills (TAKS) tests with their passing rates (credit) in related courses. Specifically, TAKS grade 10 math was selected for this year's grade correlation study. Student performance on 2008 TAKS grade 10 math was compared with their passing rates for Algebra I and geometry courses based on the course completion information submitted by districts for 2005/2006 – 2007/2008 school year. Only those students who had both TAKS and course data available were considered for comparison. For students who enrolled in the same course multiple times through the school year of 2005/2006 – 2007/2008, only the results from the most recent course enrollment was used for comparison.

## **Results**

### **Overall Student Performance**

The overall results for students are presented in Table 1. The table is presented in three sections. The first section (columns 1, 2, and 3) identifies the TAKS test (math) and course for which the comparison is being made as well as the number of students in each comparison group. The second section of the table (columns 4 and 5 highlighted in gray) presents passing rates for the TAKS test and passing rates for the course. The third section (columns 6 through 9) presents passing rates for

both the TAKS test and the course, for the TAKS test only, for the course only, and the percentage of students who did not pass either the TAKS test or the course.

Overall, 56 percent of students who took Algebra I and 67 percent of students who took geometry passed the TAKS math test. Fifty-three percent of students passed both the TAKS math test and Algebra I. Sixty-three percent of students passed both the TAKS math test and geometry. For each course, the overall percentage that passed the course was higher than the percentage that passed the TAKS grade 10 math test. A small percentage of students passed only the TAKS test (4 percent or less). The proportion of students passing only the course was 22 percent in geometry and 35 percent in Algebra I. Some students (10 to 11 percent) passed neither the TAKS test nor the course.

Table 1. Overall Student Performance

TAKS	Course	Student Course Enrollment	TAKS Passing Rate	Course Passing Rate	% Passing Both	% Passing TAKS Only	% Passing Course Only	% Not Passing Either
Math	Algebra I	212,453	56%	88%	53%	3%	35%	10%
Math	Geometry	248,701	67%	86%	63%	4%	22%	11%

Note: This table is based on students who have both TAKS and course data available.

### **Student Performance by Ethnicity**

#### Summary of Student Performance by Ethnicity

Regardless of ethnicity, students passed the math courses at higher rates than they passed the TAKS grade 10 math test. The percentages passing the TAKS test, the courses and both the TAKS test and courses were higher for White students than for African American students or Hispanic students.

Across the ethnic groups, the passing rate for Algebra I ranged from 85 percent to 92 percent, and the passing rate for geometry ranged from 81 percent to 91 percent.

#### African American Students

Results for African American students are presented in Table 2. For African American students, 42 percent of students who took Algebra I and 50 percent of students who took geometry passed the

TAKS math test. Forty percent of African American students passed both the TAKS math test and Algebra I. Forty-seven percent of African American students passed both the TAKS math test and geometry. For all African American students, the overall percentage that passed the course was higher than the percentage that passed the TAKS math test. The proportion of students passing only the course was 34 percent in geometry and 45 percent in Algebra I.

Table 2. African American Student Performance

TAKS	Course	Student Course Enrollment	TAKS Passing Rate	Course Passing Rate	% Passing Both	% Passing TAKS Only	% Passing Course Only	% Not Passing Either
Math	Algebra I	32,595	42%	85%	40%	2%	45%	13%
Math	Geometry	34,969	50%	81%	47%	3%	34%	16%

Note: This table is based on students who have both TAKS and course data available.

### Hispanic Students

Results for Hispanic students are presented in Table 3. Forty-eight percent of Hispanic students enrolled in Algebra I and 58 percent of Hispanic students enrolled in geometry passed the TAKS math test. Forty-five percent of Hispanic students passed both the TAKS math test and Algebra I. Fifty-four percent of Hispanic students passed both the TAKS math test and geometry. For all Hispanic students, the overall percentage that passed the course was higher than the percentage that passed the TAKS math test. The proportion of Hispanic students passing only the course was 27 percent in geometry and 40 percent in Algebra I.

Table 3. Hispanic Student Performance

TAKS	Course	Student Course Enrollment	TAKS Passing Rate	Course Passing Rate	% Passing Both	% Passing TAKS Only	% Passing Course Only	% Not Passing Either
Math	Algebra I	96,300	48%	85%	45%	3%	40%	12%
Math	Geometry	100,960	58%	81%	54%	4%	27%	15%

Note: This table is based on students who have both TAKS and course data available.

### White Students

Results for White students are presented in Table 4. The TAKS passing rate for White students who took Algebra I was 69 percent, whereas 80 percent of those that had taken geometry passed TAKS. The course passing rate for White students in Algebra I was 92 percent and in geometry was 91 percent. In addition, 66 percent of White students passed both the TAKS math test and Algebra I. Seventy-seven percent of White students passed both the TAKS math test and geometry. The proportion of White students passing only the course was 15 percent in geometry and 26 percent in Algebra I.

Table 4. White Student Performance

TAKS	Course	Student Course Enrollment	TAKS Passing Rate	Course Passing Rate	% Passing Both	% Passing TAKS Only	% Passing Course Only	% Not Passing Either
Math	Algebra I	77,651	69%	92%	66%	2%	26%	5%
Math	Geometry	102,646	80%	91%	77%	3%	15%	6%

Note: This table is based on students who have both TAKS and course data available.

### **Student Performance by Gender**

#### Summary of Student Performance by Gender

Across students enrolled in these math courses, the passing rate for the TAKS grade 10 math test was slightly higher for male students than for female students. However, the course passing rate was higher for females than for males. The passing overlap for the TAKS test and a given course was fairly similar for males and females. Across the gender groups, the passing rate for Algebra I ranged from 86 percent to 89 percent, and the passing rate for geometry ranged from 84 percent to 88 percent.

#### Female Students

Results for female students are presented in Table 5. The TAKS passing rate for female students who took Algebra I was 55 percent and for those who took geometry was 66 percent. Eighty-nine percent of female students passed Algebra I and 88 percent passed geometry. Fifty-three percent of female

students passed both the TAKS math test and Algebra I. Sixty-four percent of female students passed both the TAKS math test and geometry.

Table 5. Female Student Performance

TAKS	Course	Student Course Enrollment	TAKS Passing Rate	Course Passing Rate	% Passing Both	% Passing TAKS Only	% Passing Course Only	% Not Passing Either
Math	Algebra I	105,629	55%	89%	53%	2%	37%	8%
Math	Geometry	125,546	66%	88%	64%	3%	24%	10%

Note: This table is based on students who have both TAKS and course data available.

### Male Students

Results for male students are presented in Table 6. The TAKS passing rate for male students taking Algebra I was 56 percent and for those taking geometry was 68 percent. Eighty-six percent of male students passed Algebra I and 84 percent passed geometry. Fifty-three percent of male students passed both the TAKS test and Algebra I. Sixty-three percent of male students passed both the TAKS test and geometry.

Table 6. Male Student Performance

TAKS	Course	Student Course Enrollment	TAKS Passing Rate	Course Passing Rate	% Passing Both	% Passing TAKS Only	% Passing Course Only	% Not Passing Either
Math	Algebra I	106,779	56%	86%	53%	3%	33%	11%
Math	Geometry	123,114	68%	84%	63%	4%	21%	12%

Note: This table is based on students who have both TAKS and course data available.

## **Student Performance by Economic Status**

### Summary of Student Performance by Economic Status

The passing rate for non-economically disadvantaged students was higher than for economically disadvantaged students on the TAKS grade 10 math test, a given course, and both TAKS and a course. Across the economic status groups, the passing rate for Algebra I ranged from 85 percent to 91 percent, and the passing rate for geometry ranged from 80 percent to 90 percent.

Economically Disadvantaged Students

Results for economically disadvantaged students are presented in Table 7. The TAKS passing rate for economically disadvantaged students who took Algebra I and geometry was 47 percent and 55 percent, respectively. Eighty-five percent of economically disadvantage students passed Algebra I and 80 percent passed geometry. The rate for passing both TAKS and the course was 44 percent for economically disadvantaged students who took Algebra I and 51 percent for those who took geometry.

Table 7. Economically Disadvantaged Students Performance

TAKS	Course	Student Course Enrollment	TAKS Passing Rate	Course Passing Rate	% Passing Both	% Passing TAKS Only	% Passing Course Only	% Not Passing Either
Math	Algebra I	101,722	47%	85%	44%	3%	41%	12%
Math	Geometry	104,135	55%	80%	51%	4%	29%	15%

Note: This table is based on students who have both TAKS and course data available.

Non-Economically Disadvantaged Students

Results for non-economically disadvantaged students are presented in Table 8. For non-economically disadvantaged students, the TAKS passing rate for those who took Algebra I was 64 percent and for those who took geometry was 75 percent. Ninety-one percent of non-economically disadvantaged students passed Algebra I and 90 percent passed geometry. Sixty-one percent of non-economically disadvantaged students passed both TAKS and Algebra I. Seventy-two percent of non-economically disadvantaged students passed both TAKS and geometry.

Table 8. Non-Economically Disadvantaged Students Performance

TAKS	Course	Student Course Enrollment	TAKS Passing Rate	Course Passing Rate	% Passing Both	% Passing TAKS Only	% Passing Course Only	% Not Passing Either
Math	Algebra I	110,589	64%	91%	61%	2%	29%	7%
Math	Geometry	144,428	75%	90%	72%	3%	17%	7%

Note: This table is based on students who have both TAKS and course data available.