

2013 BACK TO BASICS SUMMER INSTITUTE MATH REPORT

Introduction

The Math component of the 2013 Back to Basics Summer Institute consisted of two weeks of intensive math drills for the SAT and ACT exams. One week was devoted to each exam. Each week involved daily math problem drills that covered the exam subject area taught for that day. Students were given a pre-test before the week of drills and a post-test after a week of drills for each exam.

The SAT and ACT subject areas covered consisted primarily of key areas in algebra, geometry, and probability, plus complex numbers and trigonometry on the ACT exam. Thus, the first week focused on algebra, geometry, and probability, while the second highlighted complex numbers and trigonometry.

Results

The students were given an SAT pre-test and then post-test each of 25 minutes in duration and consisting of 20 questions. The ACT pre-test was 30 minutes in duration and consisted of 30 questions. The ACT post-test was a full-length math section for 60 minutes in duration and consisted of 60 questions. The difference in time reflected the different testing formats for each exam. Since the ACT post-test was taken after all drills were completed, the opportunity was used to simulate actual testing conditions, given the completion of two weeks of drills.

1. Overall Results

Upon completion of a test, students were graded on correct answers. Since the tests consisted of a different number of questions, the scores were normalized to 100 for comparison. The overall results from the pre-test and post-test exams are given below by percentage.

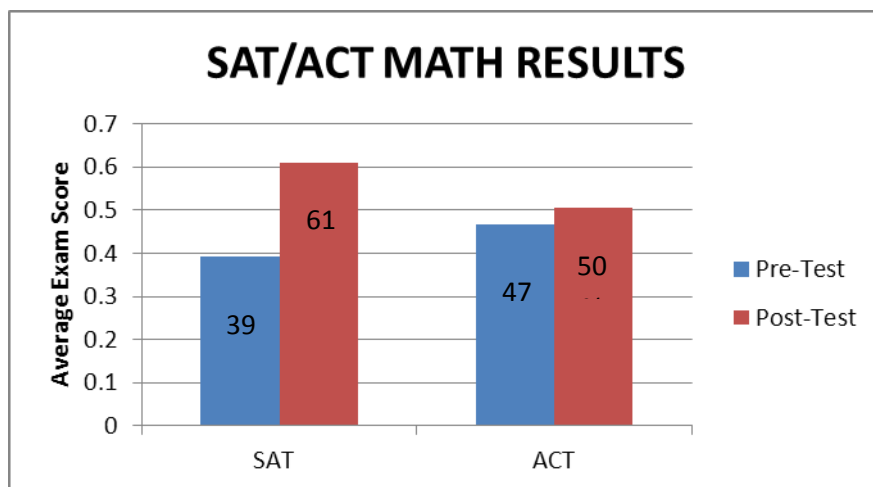


Figure 1

Based on the above chart, overall the students were able to increase the scores on both exams after a week of drills. The increased overall SAT post-test score over the ACT post-test score was due to the increased time limitations on the ACT exam. The average test scores, however, still increased for each exam.

2. 4-tests Completed Group

Some students were able to take each of the four tests and are considered as the 4-tests completed group. This group is notable because the group's average SAT pre-test score is approximately equal to the overall group's average SAT pre-test score, yet the 4-tests completed group's remaining test scores on average are higher than the overall group's test scores. Since the SAT pre-test was the first test before any drills, this may indicate that the 4-tests completed group may have benefitted more by being present for all drills and tests for each exam. The results of the 4-test completed group are given below.

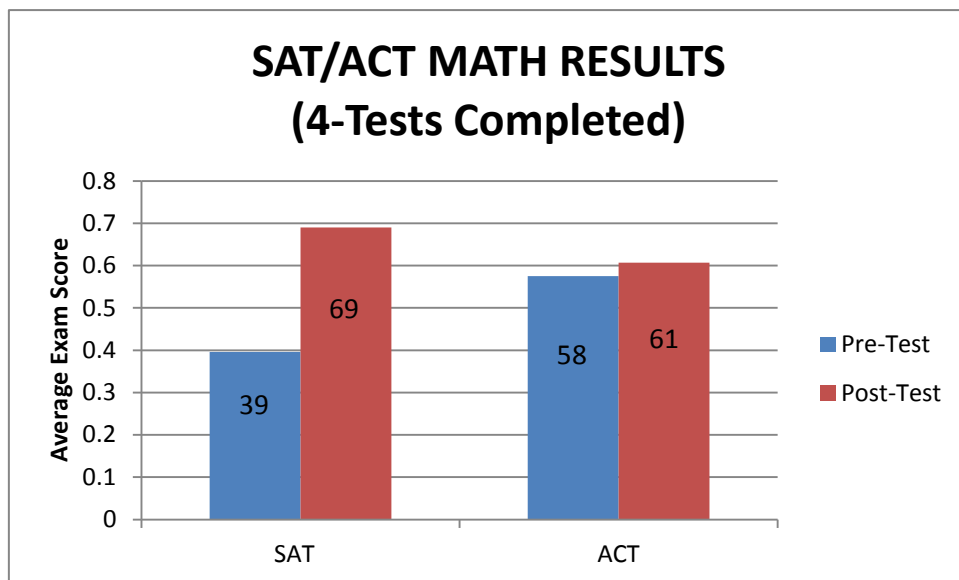


Figure 2

Based on the results from both charts, the two-week intensive math drills aided the students' preparation for the SAT and ACT exams. The percentage increase is lower for the ACT because the majority of the knowledge required for the ACT was necessarily learned during the week of SAT study. This is why the ACT average pre-test score is significantly higher than the SAT average pre-test score. Thus the ACT percentage increase represents the knowledge increase from the study of complex numbers and trigonometry.

Moreover, students who were able to complete each day of the two weeks of drills and thus take each of the four tests given achieved a higher score on average than the other students who were not able to complete each day of the two weeks of drills. This may indicate that not only is attendance a positive factor in drill effectiveness, but perhaps increased weeks of drills may also be a positive factor in obtaining student readiness.

3. Individual Performance

The next two charts display individual results for all students and then results for the 4-tests completed subgroup, respectively. It is clear from the chart that the highest score achieved increased per exam.

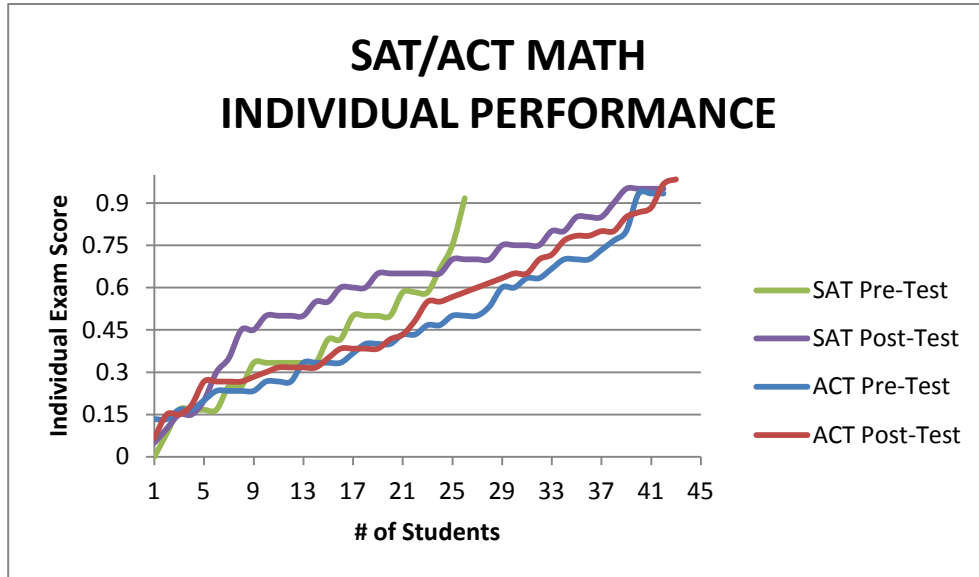


Figure 3

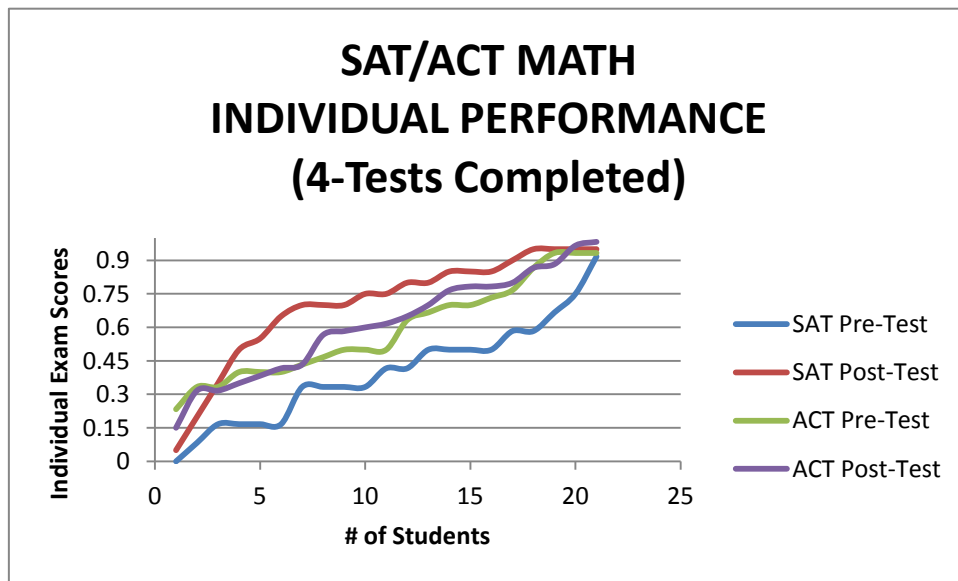


Figure 4

As expected, each student was able to increase test scores based on the weekly drills. This is statistically significant because it shows that students were able to continuously increase individual skill sets as drills and testing increased.

Conclusion

Based on the foregoing results, the program successfully increased the students' preparation for the math section of the SAT and ACT exams. Moreover, this success was accomplished in only two short weeks of intense drills and practice. This is a direct result of the paradigm of this program. Since the program's paradigm equals success for its students, the Back to Basics Summer Institute can benefit many students for years to come.