

## AP Calculus Results (Core Plus)

\* Damon Blackman ([Dblack868@aol.com](mailto:Dblack868@aol.com)):

I would like to share with you some encouraging data on how well students at San Pasqual High School did on the AP Calculus exam.

Currently, our students can choose between two math curricula. We are located just north of San Diego, California. Approximately 25% of our graduating seniors go on to attend a four-year university, and an additional 25% percent go to a junior college.

Generally, students in our district who take AP Calculus as seniors were accelerated in math and took Algebra 1 in eighth grade, Geometry in ninth grade, Algebra 2/Trigonometry in tenth grade, and Pre-Calculus in eleventh grade. However, some seniors in the classes of 1998 and 1999 completed AP Calculus after taking three years of Core Plus. It is very important to recognize that NONE of these students were accelerated in math. So, we are talking about two different populations of students.

Just as traditional students take 4 years of math before taking AP Calculus, so is it preferred that Core Plus students complete Courses 1 through 4 before entering AP Calculus. However, these students who went directly from Course 3 to AP Calculus were highly motivated to succeed.

Early in the year, our AP Calculus teacher reported that Core Plus students were having difficulty with the simple manipulation skills (factoring of trinomials, recognizing differences of squares, and completing the square) they had not yet seen. (Please note that most of these skills are found in the current version of Course 4 which these students did not complete.) Since the Core Plus students were able to do the manipulations, but needed them to become more "automatic," these skills were easily remediated. Our AP Calculus teacher also noted that overall, Core Plus students understand mathematics conceptually better than his traditional students do and perform especially well in the area of geometric representations.

### 1998:

51 traditional students took AP Calculus.

18 students took the AP exam.

Score	# of Students
5	3
4	7
3	3
2	5
1	0

5 Core Plus students (completed Course 3 as juniors) took AP Calculus.

2 students took the AP exam.

Score	# of Students
5	0
4	1
3	1

2	0
1	0

**1999:**

25 traditional students took AP Calculus.

9 students took the AP exam.

Score	# of Students
5	0
4	1
3	2
2	6
1	0

26 Core Plus students took Calculus.

3 students took the AP exam.

Score	# of Students
5	0
4	0
3	3
2	0
1	0

The apparent shift from students' entering Calculus from traditional Pre-Calculus to students' entering Calculus from Core Plus Course 3 can be explained. In 1998, only five of the original 151 students who began Core Plus as freshman went on to Calculus rather than completing Course 4 as seniors. And, all students (who were at grade level) of the Class of 1999 entered Core Plus Course 1 as freshmen; Algebra 1 was not offered.

Overall, for the first time in our school's history, we had students, who began as freshmen at grade level, accelerate their learning - they became prepared to take Calculus and then went on to take the AP exam. Our calculus teacher said NONE of the Core Plus students performed at the lower end of his calculus classes. Rather, two or three of them performed near the top. All students from Core Plus passed the exam.

\* Diane Moore ([mooredi@wsh.tcaps.k12.mi.us](mailto:mooredi@wsh.tcaps.k12.mi.us)) on January 12, 2000:

Last year, the AP Calculus AB class at Traverse City West High School was a mixture of students who had come from either an accelerated Core Plus program or a more traditional program. The accelerated Core Plus students had been accelerated in their junior year and were unable to complete the entire Core Plus program. The more traditional students had followed a level sequence of Algebra 1 (in eighth grade), Geometry, Algebra II, and Pre-Calculus. Although students had different strengths according to their backgrounds, none of them were proficient in symbolic algebra. The greatest difference in the students was their exposure to the use of the graphing calculator to access tables and graphs.

As you probably know, the Advanced Placement test demands that students be able to visualize and interpret graphs. The test also includes problems where using lists or tables is helpful.

The results of the AB test were as follows.

There were nine students with a Core Plus background who took the test.  
Six of them earned a 3 or 4.

There were sixteen students from a more traditional background who took the test.  
Four of them earned a 3 or 4.

There were no 5's.

Note: TCWHS is working to change past impressions of why a student should take the AP test. Students are now told that they will take the test if they choose to enroll in the class. They are also informed that it is their responsibility to work toward a 4 or 5 on the AP test.