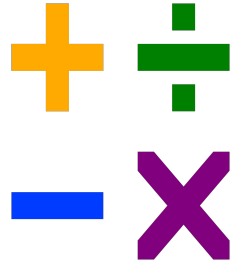


District Math Night



High School Math

Jennifer Goforth, Director of STEM

Mirta Alsina, AP, Supervisor of Math

Scott Feinstein, Dana Rubin, Math Teachers

Nicholas Santangelo, School Counselor

Agenda

Welcome, J Goforth

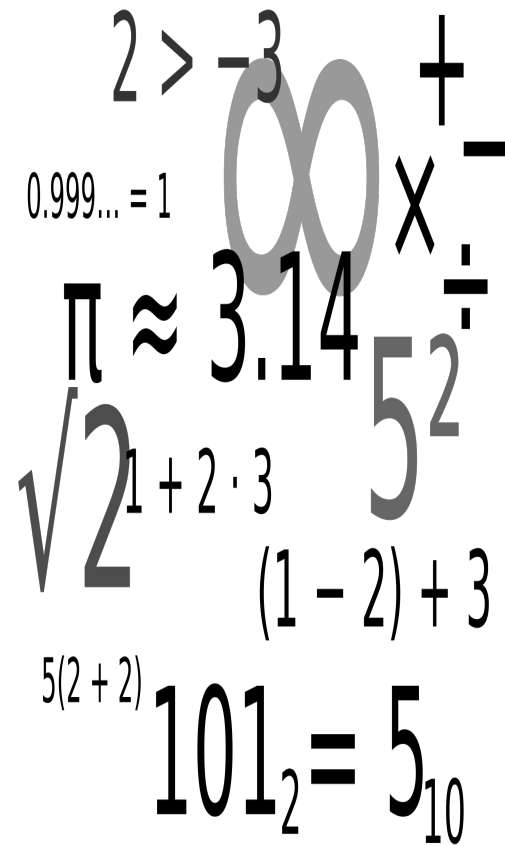
Course Progressions and Levels of Math, J Goforth

AP's and Upper Level Math, D Rubin

Pathways in Math, S Feinstein

Math needed for College, N Santangelo

Math Help at Home, M Alsina



8-12 Math Course Pathways

Middle School	Grade 9	Grade 10	Grade 11	Grade 12
Algebra B Accel. (*Opt Geo. Accel.)	Algebra 2/Trig H Algebra 2 H (*Opt Geo. H)	Trig/Calc. H or Pre-Calc. H	AP Calc. BC AP Calc. AB Calc. H	Calc. III HH AP Calc. BC AP Calc. AB AP Statistics
Algebra B Accel. or Algebra B	Geometry H or Geometry	Algebra 2 H or Algebra 2	Trig/Calc. H Pre-Calc. H Pre-Calc. ** Prob & Stats H ** Prob & Stats	AP Calc. AB Calc. H AP Stats Prob. & Stats H Prob. & Stats
Algebra B	Algebra I H or Algebra I	Geometry H or Geometry	Algebra 2 H or Algebra 2	Pre-Calc. or Prob. & Stats

* Option to double in Geometry in 8th or 9th Grade to accelerate.

** Alternate option to Pre-Calculus or recommend taking Probability & Statistics after Pre-Calculus.

Levels of Math

- **Algebra 2/Trig Honors vs. Algebra 2 Honors**
 - Both have the same credits
 - Algebra 2/Trig is more rigorous and moves at a faster pace in preparation for AP Calculus BC
- **Geometry Honors vs. Geometry**
 - Honors is more rigorous, covers more content standards and moves at a faster pace.
- **How are course pathways determined?**
 - **By teacher recommendation**
 - Student achievement and progress
 - Student interest

AP and Honors

- Pre-Calc Honors vs. Trig/Intro to Calc Honors
 - Differ by pacing and content
 - Trig/Calc leads to AP Calc BC or AB
- Calc Honors vs. AP Calculus AB vs. AP Calculus BC
- AP Statistics vs. Probability and Statistics (H)
 - Students do not have to take Prob & Stats prior to AP Stats
- Calculus III (Multivariable Calculus)
 - Supports AP Physics

What is the goal?

AP Calculus AB and AP Calculus BC

Many students who plan on majoring in a STEM field or who are confident with their math skills take an [AP Calculus course](#). The material that these two classes cover is very similar, but Calculus BC is seen as more difficult because it moves at a faster pace and covers some additional topics such as polynomial approximations and series, series of constants, and Taylor series. However, both are challenging AP classes, and **taking either class is one of the best ways to prove your strong math skills**. A solid knowledge of calculus is also required for many STEM careers.

AP Statistics

This AP course covers exploring data, sampling and experimentation, anticipating patterns, and statistical inference. **Statistics is one of the most widely used math subjects, and many career fields require a background in it.** [AP Statistics](#) teaches students practical applications of Mathematics as well as effective analytical and communication skills. It is an outstanding course to have on your transcript. **This course is a good option for students who want to take an AP math class but feel statistics will be more useful than calculus for their future career.**

Calculus III (Multivariable Calculus)

Students who have successfully completed AP Calculus BC with an “A” average have the option to take Calculus III, which involves mathematical analysis in two and three dimensions. The content in this course offering will supplement higher level AP Physics and other topics in engineering.

Unlike AP Calculus, students typically do not receive college credit for successful completion of Calculus III.

Possible Pathways Include:

- STEM Interests
- Business and Economics
- Liberal Arts

What does the Research Say?

- Research
 - NCTM- [“Catalyst for Change”](#)
 - [“High School Math Classes you should take”](#)
- Base on what will best prepare them for college study.

Interest-Based Pathways Could Also Provide Better Coordination with Science Class Selection

STEM Pathway

Pre-Calculus
Trig/Calculus

AP Calculus AB/BC
Calculus H

Calculus III
AP Statistics
Probability & Statistics
AP Computer Science A

Chemistry
Honors

Physics Honors
AP Biology
AP Physics

AP Chemistry
Anatomy & Physiology
Other Elective

Interest-Based Pathways Could Also Provide Better Coordination with Science Class Selection

Business and Economics Pathway

Pre-Calculus
Trig/Calculus

AP Calculus AB/BC
Calculus H

AP Statistics
Probability & Statistics

Geoscience
Honors

AP Environmental Science
Other Science Elective

Interest-Based Pathways Could Also Provide Better Coordination with Science Class Selection

Liberal Arts Pathway

Pre-Calculus

AP Calculus AB
Calculus H

AP Statistics
Probability & Statistics

Geoscience
Honors

Other Science
Elective

Planning For College Admissions

- **Emphasis on “pathways” for mathematics**
 - Students encouraged to pursue courses in-line with career goals
 - Calculus vs. Statistics
- **Quality vs. Quantity of Math Credits**
 - Should I try a higher level?
 - Earning higher grades at appropriate levels of instruction is more beneficial than higher-caliber courses where mediocre grades are achieved.
- **Plan appropriately regarding interest & ability**
 - What can happen if I override the placement recommendation?
 - Student must complete 1st quarter and grades will follow.

Resources at Montclair High School

- Teachers may provide additional support before/after school
- Mountie Tutoring
- National Honors Society Peer Tutoring - see MHS Counselor
- Key Club Peer Tutoring

Useful Sites for Learning Math

- www.khanacademy.org Online free support for all subjects
- www.ck12.org online free textbooks
- YouTube, Google or www.Bing.com - Videos for any topic
- www.purplemath.com - online lessons
- <https://www.mathsisfun.com/> - online games
- <http://www.math-aids.com/> - online worksheets, games and more
- <https://kahoot.it/> - self quizzing tool

THANK YOU!

For additional information, please contact:

Jennifer Goforth

Director of K12 STEM and Testing
Department of Equity, Curriculum &
Instruction

jgoforth@montclair.k12.nj.us

Office: 973-509-4038

