

Senior College Math Course Outline

Number: 333
Level: College Prep B
Textbook: Mathematical Ideas, Miller, Heeren, Hornsby, Addison Wesley,
10th edition, 2004
Credits: 5
Written: July 2005
Revised: August 2008

Prerequisite:

In order to take this course, students must have successfully completed Algebra 2 B with at least a “C” or successfully completed Algebra 2 A. Students must also have successfully completed Geometry A or Geometry B.

Course Description:

Senior College Math is the fourth year of college preparatory mathematics for students planning on non-scientific/non-technical majors. This course is intended to provide an alternative to Pre-Calculus for the liberal arts student. The course surveys several basic concepts of mathematics designed to give the liberal arts major an understanding of the breadth of mathematics in areas other than computational application.

Topics studied will include problem solving, the real number system, linear and quadratic equations, exponents and logarithms, graphs and functions, mathematical systems, trigonometric functions, right triangle trigonometry, graphing trigonometric functions and applications of trigonometric laws. All topics will include appropriate practical application of the concepts. A special review section for the SAT will also be included. The graphing calculator (TI-83, TI-83+, or TI-84+) will be used throughout the course to help students explore and visualize concepts.

District Policy: Academic Integrity

Pupils are expected to be honest in all of their academic work. This means that the students in this course will not engage in any of the following acts:

- Cheating on examinations or other school assignments, including but not limited to, the non-authorized use of books or notes, the use of crib sheets, copying from other students' papers, exchanging information with other students orally, in writing, or by signals, obtaining copies of the examination illegally and other similar activities. Cheating

through the use of technology to exchange information on any school assignment, examination, etc. is prohibited. Technology is defined as, but not limited to, computers, telephones, text messaging, palm pilots, calculators, cameras or any other hand held device.

- Plagiarism is not permitted in term papers, themes, essays, reports, images, take-home examinations, and other academic work. Plagiarism is defined as stealing or use without acknowledgment of the ideas, words, formulas, textual materials, on-line services, computer programs, etc. of another person, or in any way presenting the work of another person as one's own.
- Falsifications, including forging signatures, altering answers after they have been graded, inserting answers after the fact, erasing of grader's markings, and other acts that allow for falsely taking credit.

A pupil found guilty of academic dishonesty may be subjected to a full range of penalties including, but not limited to reprimand and loss of credit for all of the work that is plagiarized. Disciplinary action may also be a consequence of such behavior. Additional consequences may apply as defined in specific department policies and guidelines.

A teacher who believes that a pupil has been academically dishonest in his/her class should resolve the matter in the following manner:

- Reprimand the student orally and/or in writing. The teacher is also authorized to withhold credit in the work due to academic dishonesty.
- If warranted, the teacher shall file a written complaint against the student with the Administration, requesting a more stringent form of discipline. The complaint must describe in detail the academic dishonesty that is alleged to have taken place, and must request that the matter be reviewed by the Administration.
- The Administration will determine if further discipline of the pupil is appropriate, and will determine the nature of the discipline on a case-by-case basis.
- If the pupil is not in agreement with the disciplinary action of the Administration, he/she may appeal the action first to the Principal and secondly to the Superintendent. If the pupil is dissatisfied with the Superintendent's disposition of the case, he/she may grieve the action in accordance with Policy No. 5710, Pupil Grievance.

Equity Statement:

High Point Regional High School's curriculum and instruction are aligned with New Jersey Core Curriculum Content Standards and address the elimination of discrimination by narrowing the achievement gap, by providing equity in educational programs and by providing opportunities for students to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability, or socio-economic status.

New Jersey Core Curriculum Content Standards Addressed:

Standard 4.3 Patterns and Algebra

All students will represent and analyze relationships among variable quantities and solve problems involving patterns, functions and algebraic concepts and processes.

Standard 4.5 Mathematical Processes

All students will use the mathematical processes of problem solving, communication, connections, reasoning, representations and technology to solve problems and communicate mathematical ideas.

Course Objectives:

Students will be able to:

1. recognize and perform basic operations on the real numbers and the subsets of whole numbers, integers, rational numbers and irrational numbers.
2. develop a thorough understanding of algebraic concepts and their function in problem solving applications.
3. develop confidence and proficiency in using algebraic concepts.

Course Policies:

Throughout the year, students are expected to be active participants in the learning process. The teacher will involve them in the introduction and development of material through questioning and class discussion.

Homework will be assigned almost every day and is an important part of the course, providing students with the opportunity to apply skills learned in class and strengthen conceptual understanding and identify areas of weakness. It is **imperative** that students do homework regularly and conscientiously. Some problems assigned will require students to extend the concepts learned in class to new situations. Assignments will be reviewed in class and it is the student's responsibility to ask questions about problems he/she may not understand, to identify specific mistakes and to take notes on any further explanations concerning these problems. It is the student's responsibility to obtain material (notes, homework, etc.) for any extended absence and meet with the teacher upon return to class. The teacher will be available to meet with students after school for extra help and to help students make up work from absences.

This class will use graphing calculators (TI-83, 83+, or TI-84+). Students who do not have a calculator will be issued one by the school. The student will sign that he/she has received the calculator and is expected to return the calculator in the condition they

received it or pay full purchase price for the calculator. Students may not substitute a calculator for a lost or damaged calculator.

Students are expected to bring the textbook, three-ring binder, homework, calculator and pen/pencil to class. They are expected to take notes during class, to keep these notes along with homework, quizzes, and tests, in an organized manner. **A three-ring binder is strongly recommended.**

Student Evaluation:

Quizzes, based on the course proficiencies, will be given about once a week, with a major test, based on the proficiencies, given at the end of each unit. An exam covering the semester's work will be given at the end of each semester.

Homework will be checked daily. **All work must be shown neatly to receive full credit.** Homework will usually not be graded, but will be considered satisfactory if the work shown indicates the student made a conscientious effort to complete the assignment. If a student is not able to complete an assignment because he/she does not understand the work, he/she may be asked to complete it after the assignment is reviewed in class and /or the student has come for extra help in order to receive credit for the assignment. Sometimes an assignment given for homework may be collected and graded as a quiz. This will only occur when the concepts have been thoroughly reviewed. Class work/group work may also be graded. Each teacher will explain his/her homework policy to the class.

Grades will be calculated according to the school grading policy and the following guidelines:

- A. Marking Period Grade:
 - 1. Quizzes and Tests 70 - 80%
 - 2. Homework and Classwork 20 - 25%
 - 3. Class participation 0 - 5%

- B. Final Grade
 - 1. Each Marking Period 20%
 - 2. Midterm Exam 10%
 - 3. Final Exam 10%

Student Proficiencies:

Students will be able to:

1. demonstrate an understanding of algebra and geometry concepts reviewed in preparation for the SAT.
2. apply a variety of problem solving methods.
3. use the laws of exponents and apply them to scientific notation.
4. understand and apply the concepts of inductive/deductive reasoning.
5. solve linear equations and inequalities.
6. solve word problems using techniques mastered in proficiency 4.
7. use ratio, proportion and direct and inverse variation as a means of problem solving.
8. solve quadratic equations using the square root property and the quadratic formula.
9. graph lines and parabolas using a variety of methods.
10. determine the slope and equation of a straight line.
11. solve a system of equations by graphing, elimination and substitution methods.
12. recognize and graph linear, quadratic, exponential, and logarithmic functions.
13. use basic operations to solve application problems.
14. use estimation as a problem solving technique.
15. solve linear programming problems.
16. use matrices to solve systems of linear equations.
17. find and apply trigonometric functions.
18. use the six trigonometric definitions to solve right triangles.
19. use the Law of Sines and Law of Cosines to find unknown values.
20. apply all concepts to real world problems.