

VALENCIA HIGH SCHOOL

“Learning for Life”

Algebra 2 A/B

Ms. Harris

Introduction to Course

This is a two-semester Algebra II course. The following is a list of topics covered as put forth from the California Content Standards for Public Schools. You may find definitions of standards at

<http://www.cde.ca.gov/be/st/ss/mth/algebra2.asp>

- 1.0 Students solve equations and inequalities involving absolute value.
- 2.0 Students solve systems of linear equations and inequalities (in two or three variables) by substitution, with graphs, or with matrices.
- 3.0 Students are adept at operations on polynomials, including long division.
- 4.0 Students factor polynomials representing the difference of squares, perfect square trinomials, and the sum and difference of two cubes.
- 5.0 Students demonstrate knowledge of how real and complex numbers are related both arithmetically and graphically. In particular, they can plot complex numbers as points in the plane.
- 6.0 Students add, subtract, multiply, and divide complex numbers.
- 7.0 Students add, subtract, multiply, divide, reduce, and evaluate rational expressions with monomial and polynomial denominators and simplify complicated rational expressions, including those with negative exponents in the denominator.
- 8.0 Students solve and graph quadratic equations by factoring, completing the square, or using the quadratic formula. Students apply these techniques in solving word problems. They also solve quadratic equations in the complex number system.
- 9.0 Students demonstrate and explain the effect that changing a coefficient has on the graph of quadratic functions; that is, students can determine how the graph of a parabola changes as a , b , and c vary in the equation $y = a(x-b)^2 + c$.
- 10.0 Students graph quadratic functions and determine the maxima, minima, and zeros of the function.
- 11.0 Students prove simple laws of logarithms.
 - 11.1 Students understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.
 - 11.2 Students judge the validity of an argument according to whether the properties of real numbers, exponents, and logarithms have been applied correctly at each step.
- 12.0 Students know the laws of fractional exponents, understand exponential functions, and use these functions in problems involving exponential growth and decay.
- 13.0 Students use the definition of logarithms to translate between logarithms in any base.
- 14.0 Students understand and use the properties of logarithms to simplify logarithmic numeric expressions and to identify their approximate values.

15.0 Students determine whether a specific algebraic statement involving rational expressions, radical expressions, or logarithmic or exponential functions is sometimes true, always true, or never true.

16.0 Students demonstrate and explain how the geometry of the graph of a conic section (e.g., asymptotes, foci, eccentricity) depends on the coefficients of the quadratic equation representing it.

17.0 Given a quadratic equation of the form $ax^2 + by^2 + cx + dy + e = 0$, students can use the method for completing the square to put the equation into standard form and can recognize whether the graph of the equation is a circle, ellipse, parabola, or hyperbola. Students can then graph the equation.

18.0 Students use fundamental counting principles to compute combinations and permutations.

19.0 Students use combinations and permutations to compute probabilities.

20.0 Students know the binomial theorem and use it to expand binomial expressions that are raised to positive integer powers.

21.0 Students apply the method of mathematical induction to prove general statements about the positive integers.

22.0 Students find the general term and the sums of arithmetic series and of both finite and infinite geometric series.

23.0 Students derive the summation formulas for arithmetic series and for both finite and infinite geometric series.

24.0 Students solve problems involving functional concepts, such as composition, defining the inverse function and performing arithmetic operations on functions.

25.0 Students use properties from number systems to justify steps in combining and simplifying functions.

TEXTBOOK AND MATERIALS:

Please bring the following to class every day:

- green Algebra 2 book (McDougal Littell – replacement cost is \$100)
- sharpened pencils
- notebook paper for notes and homework
- graph paper (optional, but recommended)
- any assignments that are due
- scientific or graphing calculator

HOMEWORK POLICY:

Homework is due the day after it is assigned. Homework will be graded on the basis of completion and a reasonable attempt at problems assigned. Students are responsible for attempting all problems and making the appropriate corrections when we review them the next day in class to receive full credit.

NO LATE HOMEWORK ACCEPTED

GRADING SYSTEM:

- Homework will be worth 20% of the overall grade.
- There will be a final exam worth 20% of the overall grade.
- Tests and quizzes will be worth 60% of the overall grade.
- Grading scale: A = 90-100%, B = 80-89%, C = 70-79%, D = 60-69%,
F = below 60%

CLASSROOM EXPECTATIONS

- Be prepared for class. This means being in your seat when the tardy bell rings, ready to begin immediately.
- Be respectful of others. This includes not talking while other students or the teacher are talking.
- No food or drink during class (water is allowed).
- Stay in your seat until the final bell rings.
- Cell phones must be turned off and put away at all times.

ACADEMIC INTEGRITY:

Any student involved in dishonesty on any work will be subject to one or more of the following consequences: an automatic zero on the work, suspension from class, referral to an assistant principal, or a conference between the AP, parents, and the teacher.

ATTENDANCE/TARDY POLICY:

Attendance is important and is directly related to your success. To be successful, students need to be in class and on time each day. The school tardy policy and district attendance policy will be enforced. Students who are absent will be allowed as many days as they were gone to make up assignments. If you know you must be absent the day of a test or quiz, please inform the instructor ahead of time. Students will be expected to be prepared to make up the test or quiz the day they return to school.

WEBSITE:

My website is http://staff.hartdistrict.org/dlharris/www/mathintro/math_home/mathhome.php. Information on the website includes syllabus, homework, and grades.

TEACHER COMMUNICATION:

- The best way to reach me is by email: dlharris@hartdistrict.org
- I will be available for extra help at lunch most days.

Please print and fill out this page, indicating that you have read and understand the information.

Student Name (please print): _____ Period: _____

Student Signature: _____ Date: _____

Student Email: _____

Mother's Name(s): _____

Work phone number _____ Cell number _____

Email Address: _____

Father's Name: _____

Work phone number _____ Cell number _____

Email Address: _____

Home phone: _____

Parent Signature: _____