

Algebra 2 Syllabus
Santa Cruz Learning Center Homeschooling Course
2014-2015 School Year

Instructor: Malika Bell, M.S.

Center website: www.santacruzlearningcenter.com

For homework assignments go to: Thinkwave. You will be invited (via email) to start an account through our Thinkwave system.

All classes will be held at the Santa Cruz Learning Center
655 Capitola Road Suite 200
Santa Cruz, CA 95062
(831) 331-5611

Book: Book: Algebra 2: Applications, Equations, Graphs. Larson, Ron; Boswell, Laurie; Kanold, Timothy D. Publication, 2004.
ISBN: 0395937787

A Note From Your Teacher: I am very happy that I have the honor of teaching you Algebra 2! This is when we take all the stuff you learned in Algebra 1 to the next level. You will be able to graph various shapes and solve equations that you used to struggle through, with ease! Do your best to come to every class on time and ready to learn. I commit to doing this for you and I assure you that you will be a successful math student this year!

Prerequisites and expected knowledge: Algebra 1A. Possesses familiarity with solving multi-step equations, factoring, exponents, quadratic equations, and graphing linear and quadratic functions. Should be knowledge of the Cartesian coordinate system. Should be comfortable with adding, subtracting, multiplying and dividing fractions and negative numbers.

Schedule: Tuesdays and Fridays 8:45am-9:45am. This course is scheduled to run the full year.

We will NOT hold class on the following days this semester:

Nov. 28 – Thanksgiving Holiday

Dec. 21-4 – Winter Break

The first semester of this course will end on Dec. 19th. **We will have a finals on Thursday Dec. 18 and Friday Dec. 19. You can come in anytime between 10am-4pm to take your final. It should take about two hours but you will have unlimited time.**

Brief Course Description:

This Algebra 2 course builds on the basic algebraic concepts in relation to factoring polynomials, exponents, solving quadratic equations and inequalities, and graphing. This course will examine scientific notation, roots of quadratic equations, real numbers, logarithms, the graphical solution of simultaneous equations, inequalities, factoring, trigonometric functions, exponential equations, polynomials, and word problems. Statistics, probability, and set theory are also included in this course.

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Course Goals and/or Major Student Outcomes:

- Students will investigate functions and graphing functions.
- Students will incorporate many real life applications through arithmetic and geometric sequences.
- Students will solve systems of equations, investigations, and logarithms.
- Students will display accurate data gathering techniques.
- Students will meet or exceed all of the California State CC Standards of Algebra 2.

Course Objectives:

Chapter	Algebra 2 CA CC Standards	Month
Linear Equations and Inequalities: absolute value, two or three variables solved by substitution with graphs or matrices.	F-BF-B.3, A-REI-A.2 A-REI-A.3, F-IF.C.7, A-SSE.A	Aug
Systems of Linear Equations and Inequalities. Functions and their graphs, Slope and rate of change, Quick graphs of linear equations, Writing equations of lines, Correlation and best-fitting lines, Linear inequalities in two-variables, Piecewise functions, Absolute value functions.	A-CED.A1, A-CED.A2, A-CED.A3, A-CED.A4	Sept.
Quadratic Functions: solve by factoring, completing the square, or using the quadratic formula, quadratic equations in the complex number system, graphing: determining the maxima, minima, and zeros of the function, effects of changing coefficients in a quadratic equation	A-APR.A, A-APR.B, A-APR.C, A-CED.A, F-IF.7-8, A-SSE.B, F-BF.3, N-CN.7; A-REI-B, A-REI.C, A-REI.D, F-IF.C.7, F-IF.C.8	Oct
Polynomials and Polynomial Functions : all operations, including long division, difference of squares, perfect square trinomials, sum and difference of two cubes, polynomial denominators, including those with negative exponents, fundamental theorem of algebra	A-CED.1-3, A-APR.C-4, A-APR.C, A-APR.D, A-SSE.B, N-CN.A; N-CN.C, A-REI.11, F-BF.3, F-IF.7, F-IF.C.7	Oct
Powers, Roots and Radicals: nth Roots	A.CED.2, A.CED.3, A.CED.4,	Nov

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and rational exponents, Properties of rational exponents, Power functions and function operations, Inverse functions, Graphing square root and cube root functions, Solving radical equations, Statistics and statistical graphs	A.APR.A; A.APR.D; F.IF.5; F.IF.7; F.BF.3, A-REI.A, A-REI.B, N-RN.A, N-RN.B	
Complex Numbers: relationship, between real and complex numbers arithmetically and graphically, plotting as points in a plane	N-CN-A.1 N-CN-A.2 N-CN-B.7 N-CN-B.8 N-CN-B.9	Nov.
Exponential and Logarithmic Functions: prove simple laws of logarithms, simplify logarithmic numeric expressions and identify their approximate values	A.SSE.1; A-CED.A, F.IF.5; F.IF.7, F.BF.3-4, F.IF.8, A-REI.11, F.LE.4	Dec.
Rational Equations and Functions: Variation functions, Multiplying and dividing rational expressions, adding and subtracting rational expressions, rational functions, solving rational equations and inequalities, radical expressions and rational exponents, radical functions, solving radical equations and inequalities.	A.CED.1-3; A.APR.A, A.APR.D, F.IF.5; F.IF.7; F.BF.3; A-REI.D, F-BF.A1, F-BF.B3, F-BF.B4	Jan
Quadratic Relations and Conic Sections: Circles, ellipses, hyperbolas, parabolas, identifying conic sections, solving non linear systems.	G.GPE.A; A-REI.7	Feb
Sequences and Series: Geometric, arithmetic, infinite series and sequences.	F-IF.3; F-BF.2; F-BF.1; F-LE.2; A-SSE.4	Mar
Probability and Statistics: combinations and permutations, finite and infinite geometric series, compound events, data-gathering, binomial distribution, normal distribution, independent and dependent events.	S-CP.1; S-CP.9; S-MD.4-7; S-IC.A, S-SIC.B, S-SIC.C; S-ID.A; S-MD.B	April
Trigonometric Ratios and Functions: Law of sines, law of cosines, unit circle, right angle trig, inverses of trig functions.	F-TF.A, F-TF.B, F-TF.C,	May
Trigonometric Graphs, Identities and Equations: Graphs of sine and cosine, and other trig functions. Fundamentals of trig identities, sum and difference	F-TF.8, F-TF.9, A-CED.1-3, F-IF.5, F-IF.7, F-BF.3, F-TF.5	May

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identities, half angle formulas.		
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Course Outline:

Students will complete the majority of the textbook, demonstrate proficiency of the topics show in the table of contents, and take cumulative tests. The students will complete a mid-term and final examination. The students will complete all of the key assignments listed below. The students' Education Specialist will review the students' work on a monthly basis and will grade all tests and exams. Samples of students' work will be kept in the students' portfolios. The student will master each topic with sufficient depth and breadth to meet or exceed the California State Standards for Algebra 2.

Key Assignments:

Student must complete these specific assignments:

1. The student will read introduction of each new topic. The student will review the examples given with their complete solutions shown and will then complete the practice problems for the new topics.
2. The student will complete daily problem sets and will complete review sets of previous topics.
3. The student will take cumulative tests.
4. The student will participate in periodic written assessments, including but not limited to a mid-term and final exam, without outside assistance or use of notes or the text.
5. Education Specialist will review work on a monthly basis, and the student's written samples will be kept in a portfolio.

Instructional Methods and/or Strategies

Instructional methods and/or strategies may include, but are not limited, to the following techniques:

- Workbook exercises
- Hands-on mathematical investigation
- Internet research
- Library research
- Lecture

Assessment Methods and/or Tools

Evaluation of performance is based on individual abilities, interests, and talents. Methods by which student progress is assessed will be through a variety and/or combination of methods. The methods available include, but are not limited to:

- a. Monthly review of work by Education Specialist
- b. Portfolios
- c. Parent facilitator and Education Specialist observation
- d. Student demonstrations

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- e. Student grades
- f. Student work examples
- g. Written examination
- h. Research projects

Homework:

We will assign homework at the end of each class period. It is expected that you will complete a portion of homework each day leading to the next class meeting. In order to excel in math it is necessary to do a little of it every day. Do all homework in pencil. When we go over homework problems in class, please change any of your work with a different color pen so that I can understand your process when I correct your work

Resources:

When you need extra help outside of class:

- Use the book and the worked out examples in the section of the book that we went over in class.
- Look at your notes from class
- Ask a friend from class
- Email or text Malika. You can take a photo of your work and send it to me.
- Get support online: Khan Academy is pretty awesome if you haven't used it already.
- Meet with your classmates outside of class at least once per week and work together on homework. Take turns teaching each other the material. When you can teach it, you know it much better!