



# Dallas High School Home of the Dragons



Algebra 2

2013-2014

**Instructor:** Cherish Henrickson, John Jones

**Telephone:** (503) 623-8336

**Email:** ([cherish.henrickson@dsd2.org](mailto:cherish.henrickson@dsd2.org))

**Office Hours:** Tues-Friday 3:00-3:30, additional times by arrangement.

**Course Description:** This advanced course in Algebra consists of: the study of linear opened sentences, polynomials, rational expressions, irrational numbered quadratic equations, logarithms, trigonometry, and elementary analytic geometry. Basic Statistics, probability, and number theory will also be addressed.

**Texts:** Algebra 2: Holt, Rinehart and Winston; 2003

## **Course Outline**

	Unit Topic	Summative Assessment (Standards to Be Assessed)
<b>Semester 1</b>		
Unit 1	Probability	Unit Test (26,27,28)
Unit 2	Statistics	Unit Test (24,25)
Unit 3	Sequences and Series	Unit Test (6,15,16,18,19)
Unit 4	Linear function	Unit Test (1,2,12,13,16)
Unit 5	Function Concept	Unit Test (1,2,10,13,14,16,17,21,22)
<b>Semester 2</b>		
Unit 6	Polynomial functions	Unit Test (1,2,3,4,5,7,9,10,11,14,16,17,18,20,21,22)
Unit 7	Exponential & Logarithmic functions	Unit Test (1,2,5,6,8,14,16,17,18,20,21,22)
Unit 8	Rational & Radical functions	Unit Test (1,2,8,9,11,14,16,17,18,20,21,22)
Unit 9	Introduction to Trigonometry	Unit Test (1,2,16,17,22,23)

## **Standards to Be Assessed:**

### **Number and Quantity**

#### **Use fractions, decimals, irrational, and complex numbers to solve problems.**

1. Use properties of exponents to simplify expressions with fractional and radical exponents. [N-RN 1,2]
2. Reason quantitatively and use units and descriptive models to solve problems. [N-Q 1,2,3]
3. Simplify expressions using the imaginary number,  $i$ , and reducing to the complex form  $a + bi$ . [N-CN 1,2][A-REI 4b]

### **Algebra**

#### **Create expressions and equations to model and solve problems.**

4. Determine the maximum and minimum value of a quadratic function by completing the square. [A-SSE 3b]
5. Use properties of exponents to transform exponential functions. [A-SSE 3c]
6. Create a formula to find the sum of a geometric (exponential) series (sum). [A-SSE 4]
7. Determine the zeros of a polynomial function by factorization and the Remainder Theorem. Use the zeros to construct a rough graph of the polynomial. [A-APR 2,3]
8. Rewrite simple rational expressions in the form of  $a(x)/b(x)$ . [A-APR 6]
9. Create, solve and graph equations and inequalities in one and two variables. [A-CED 1,2][A-REI ]
10. Rewrite algebraic expressions and solve equations and formulas for specific variables. [A-CED]
11. Solve quadratic, rational and radical equations in one variable. [A-REI 2,4b]

#### **Solve problems using two or more equations or inequalities and check solutions for reasonableness.**

12. Solve simple systems of equations consisting of linear and quadratic equations in two variables using elimination, substitution, and graphing. [A-REI 7]
13. Create, solve and graph inequalities and systems of inequalities in two variables. Be sure to include linear, polynomial, rational, absolute value, exponential, and logarithmic functions. [A-REI 11,12]

### **Functions**

#### **Model and analyze algebraic functions.**

14. Implement function notation to solve a problem. Be sure to determine the domain and range for each function. [F-IF 2]
15. Determine sequences that are functions of a recursive nature, where the domain is a subset of integers. [F-IF 3]

16. Construct and interpret a table, graph and function that model the relationship of two quantities and describe the domain, range and key features of the graph. [F-IF 4,5,6]
17. Graph various types of functions and determine the key features. Be sure to express functions in the equivalent forms through properties of exponents or by completing the square and factoring. (Linear, quadratic, square root, cube root, piecewise, step, absolute value, polynomial, rational, exponential, logarithmic, and trigonometric functions) [F-IF 7,8]
18. Compare properties of two functions each presented in a different way. [F-IF 9]
19. Write a function (explicit formula) and a recursive formula for an arithmetic and geometric sequence. [F-BF 1,2][F-LE 2]
20. Identify the transformation of a function defined by  $f(x)$  when a constant is incorporated into the function. [F-BF 3]
21. Solve equations in the form of  $f(x) = c$  by using inverse functions. [F-BF 5,6]
22. Use technology to aid with the various functions. [F-IF 4,7,8,9][ F-BF 1,2,3,4,5][ F-LE 2,4]

## **Geometry**

### **Express geometric properties with equations.**

23. Derive the equation of a circle and parabola. [G-GPE 1,2]

## **Statistics**

### **Use statistics to make inferences and justify conclusions about a population.**

24. Determine the shape of the graph for the given data values and interpret the information. [S-ID 2,3]
25. Estimate population percentages by using the mean and standard deviation of the data to fit the normal distribution. [S-ID 4]

### **Calculate and compare the probability of events.**

26. Describe the subsets of a sample space by using unions, intersections or complements ("or", "and", "not"). [S-CP 1]
27. Determine the probability when two events are independent or using conditional probability. [S-CP 2,3,4,6,7]
28. Use everyday language and situations to demonstrate independent probability or conditional probability. [S-CP 5]

**Career Related Learning Standards:** Career-related learning standards (CRLS) are fundamental skills essential for success in employment, college, family, and community life. We have integrated the Personal Management standard from the CRLS into all courses at DHS. **This standard will be assessed and communicated independent of the academic grade.** It is included below and mainly includes behaviors that will be assessed in this course.

- **Personal Management Standard:** Exhibit appropriate work ethic and behaviors in school, community and workplace.
  - Students will identify tasks that need to be done and initiate action to complete the tasks.

- Students will plan, organize and complete projects and assigned tasks on time, meeting agreed upon standards of quality.
- Students will take responsibility for decisions and actions and anticipate consequences of decisions and actions.
- Students will maintain regular attendance and be on time daily.
- Students will maintain appropriate interactions with colleagues.

### **Grading and Assessment:**

Student's final grade for each course will be broken down into two categories:

- 1) **Academic:** based on assessments, tests, projects and performances that measure learning.
- 2) **Personal Management:** based on homework completion and other behaviors measuring the CRLS personal management standard.

**The Final grade is calculated as follows: 75%** of the course grade will be based on the **Academic** grade and **25%** on the **Personal Management** grade.

- Any items included in the Academic grade (PA) may be retaken and the higher grade recorded. Teachers may extend the retake time period, but as a rule all retakes need to be done within 2 weeks of the initial assessment.
- Students will complete extra preparation before retaking an assessment.
- Personal management work turned in late may be reduced by up to 50% credit.
- Retakes are not allowed on Personal Management assignments.
- Students must schedule performance retakes at their teacher's convenience. (Speech, drama, labs.)

### **Academic Integrity:** (Student Handbook)

The faculty and administration of Dallas High School believe that honesty and integrity are personal attributes worth nurturing in our students. Because we value the educational and skill development opportunities provided by classroom assignments, research projects, tests, and credit recovery, we expect students to express academic integrity by doing their own work and properly documenting information gathered from other sources. Congruous with this belief is our resolve to handle those who violate the principles of academic integrity with stringent consequences (see insubordination).

#### **First Offense:**

- Contact with the parent
- In-school suspension or suspension for up to three days

#### **Second and Subsequent Offenses:**

- Contact with parent; conference with parent & student
- In-school suspension and/or suspension for a maximum of ten school days.

**Parents:** Please keep the rest of the syllabus. By signing this form, you acknowledge that you have read and fully understood the expectations, rules, and standards associated with (Fill in the name of your course here) . If you have questions, please call 503-623-8336 or email using the email address provided in this document.

Parent Name:

Parent Signature:

Parent email Address:

Parent Phone:

Student Name:

Student Signature: