

# Advanced Algebra Syllabus 2017-2018

Mrs. Musa

E-mail: [jmusa@pps.net](mailto:jmusa@pps.net)

Website: <https://joannemusa.weebly.com>

Benson Polytechnic High School, Room 211

## Objectives

This course is an extension of Algebra 1-2 and provides further development of the concept of a function. Topics include: (1) relations, functions, and equations; (2) transformations; (3) inverses; (4) logarithmic and exponential functions; (5) complex numbers; (6) unit circle; (7) operations on polynomials; and (8) statistics.

## Learning Targets/Common Core Standards

### AA1. Creating & Solving Equations

1a. I can isolate a variable, manipulating equations with more than one variable.

1b. I can simplify and solve simple and rational and radical (any  $n^{\text{th}}$  root) equations in one variable.

### AA2. Graphs and their Transformations

2a. I can graph linear, quadratic, cubic, square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

2b. I can recognize, describe, sketch and perform basic transformations.

### AA3. Inverses

3a. I can find the inverse of a function and represent and describe the relationship using tables, graphs, equations, and domain and range.

### SUPPL UNIT: Rate of Change

### AA4. Logarithms

4a. I can use the definition of logarithms to evaluate logarithms and convert between logarithmic and exponential forms.

4b. I can graph exponential and logarithmic functions, showing intercepts and end behavior.

### AA5. Trigonometric Functions

5a. I can extend the understanding of trigonometric functions using the unit circle in degrees & radians.

5b. I can model periodic phenomena with trigonometric function.

5c. I can prove the Pythagorean Trig Identity:  $\cos^2(x) + \sin^2(x) = 1$ .

### AA6. Polynomials.

6a. I can perform arithmetic operations on polynomials.

6b. I can understand the relationship between zeros and factors of polynomials.

6c. I can prove polynomial identities.

6d. I can rewrite rational expressions.

## AA7. Complex Numbers

7a. I can perform arithmetic operations with complex numbers.

7b. I can solve quadratic equations with real coefficients that have complex solutions.

## AA8. Statistics

8a. I can use the mean and the standard deviation of a data set to fit it to a normal distribution to estimate percentages and the area under the curve.

8b. I can understand and evaluate random processes underlying statistical experiments.

8c. I can make inferences and justify conclusions from sample surveys, experiments, and observational studies.

## Grading

10% - Assignments (Homework, classwork, projects)

90% - Test/Quizzes

A hybrid of percent and proficiency based grading will be used for assessments. For example, a student can earn a 3.5 rather than just a 3. Quizzes will always be worth 4 points and tests will be worth a multiple of 4 (i.e. 12, 16, 20, etc). A point system will be used for assignments.

### **Proficiency Grading Rubric:**

Points	Grade	Description
0 - 1.99	F	No Evidence: "I did not try this learning target"
2 - 2.99	D	Not Proficient: "I tried this learning target but did not understand it and did it incorrectly. I still need more practice."
3 - 3.19	C	Becoming Proficient: "I almost understand this learning target. I can do part of the problems correctly but I am still making mistakes."
3.2 - 3.59	B	Proficient: "I understand this learning target and can complete problems 100% correctly."
3.6 - 4	A	Masterful: "I <i>really</i> understand this learning target. I could explain how to do these problems to another students and/or solve the problem in different ways."

Final grades will be reported as percentages: 90-100% A, 80-89% B, 70-79% C, 60-69% D, 0-59% F

## Materials needed

1. Notebook – spiral or composition.

2. Pencil/Pen – All items to be graded must be done in **pencil**. Ink pens may be used for students' notebooks only.

3. Scientific calculator – Students will have access to a class set of TI-84. Students may check out TI-84's from the library, download an app for TI-84s, or purchase a TI-84 for home use.

### **Assignments/Make-up Work**

Assignments will be assigned almost daily. Students will have class time to work on the assignment and will be required to finish the assignment for homework. To support various levels of learning and paces that students encompass in mathematics, notebooks containing all the assignments will be collected on unit test day for a notebook check grade. Notebooks will be graded for completed assignments and completed warm ups. Late notebooks are subject to a 50% penalty. Notebooks may be turned in for a late grade no later than one school day after the test.

All missed work can be retrieved from my website. All worksheets are uploaded as PDF files.

**\*\*If a student misses a LT Quiz, the onus is on the student to schedule a time to come in to complete it. Tutorial, flex, and before & after school are available.**

### **“More time” Accommodation & Retakes**

If students require more time to complete a test than the time allotted in class, the student may remain in the classroom/academic support room to continue working on the test after the bell rings. The student will get a pass to their next class. Students will have an opportunity to retest during the next unit test. A student can earn a maximum grade of C for test retakes. Students may retake LT Quizzes as often as necessary to achieve an “A”. All quizzes must be completed before the unit test.

### **Classroom Policies**

1. Be kind to one another and the environment.
2. Respect ideas even if they're different from yours
3. Only approved use of electronic devices
4. Be on task and engaged – seek help when needed
5. Seek help as soon as concepts are not clear or understood. Avoid waiting until quiz/test day to decide help is needed.
6. During instruction, take notes, pay attention, ask questions, engage in classroom discussions, and refrain from side conversations.
7. If extenuating circumstances arise, please speak with me.