Adventures in Algebra - Road 3

Course Overview
Adventures in Algebra – Road 3 is for the student who has taken Pre-Algebra and is designed to improve student understanding, achievement and interaction with advanced mathematical concepts integral in the proficient stages of successful manipulation of algebraic expressions.

Students who participate in Road 3 will benefit by expanding their skills in linear equations, functions, systems of linear equations, as well as an introduction Pythagorean Theorem and its converse.

Course Description
Symbolic reasoning and calculations with symbols are central to Algebra. Through the study of Algebra preparation, a student develops an understanding of the symbolic language of mathematics and the sciences. In addition, algebraic skills and concepts are developed and used in a wide variety of problem-solving situations.

Course Goals and Objectives:
Correlates with the Common Core State Math Standards

1. The Number System
   - Know that there are numbers that are not rational, and approximate them by rational numbers.

2. Expressions and Equations
   - Work with radicals and integer exponents.
   - Understand the connections between proportional relationships, lines, and linear equations.
   - Analyze and solve linear equations and pairs of simultaneous linear equations.

3. Functions
   - Define, evaluate, and compare functions.
   - Use functions to model relationships between quantities.

4. Geometry
   - Understand congruence and similarity using physical models, transparencies, or geometry software.
   - Understand and apply the Pythagorean Theorem.
   - Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.
5. **Statistics and Probability**
   - Investigate patterns of association in bivariate data.

**Student Assessment:**

There will be no letter grades assigned in this course. In place of letter grades, a developmental level will be assigned based upon the stated course objectives throughout the program. Students will receive a final assessment of: beginning, emerging, developing, capable, experienced, or exceptional.

**Course Outline:**

**Week One**  
Greetings, Introduction, and Diagnostic Test  
Graphing  
- Slopes, Intercepts  
- Slope-Intercept Form  
Review Exercises

**Week Two**  
Define, evaluate and compare functions  
- Domain and Range  
Independent and Dependent Variables  
- Multiple representations  
- Linear vs nonlinear functions  
Review Exercises

**Week Three**  
Use functions to model relationships between quantities  
- Rate of change, initial values  
- Multiple representations  
Introduction to Systems of Equations  
Review Exercises

**Week Four**  
Solve systems of linear equations  
- Graphically and algebraically (Substitution and Elimination)  
- Real-world problems leading to linear equations in two variables  
Exponents and Roots  
Review Exercises

**Week Five**  
Geometry - Pythagorean Theorem and its Converse  
- Proof of Pythagorean Theorem  
- Applications in real world
Pythagorean Theorem in the coordinate plane

Review Exercises

Course Supplies:
The following items are to be brought to class each day.
1. Three-ring notebook binder
2. Lined Paper
3. Graph Paper
4. Pencils
5. Colored Pencils
6. 2 Red Pens
7. Ruler
8. Pencil sharpener with a barrel to collect shavings
9. Calculator (graphing calculators will not be allowed).

Classroom Behavior:
The student is expected to demonstrate mature, polite behavior and extend courtesy to everyone at all times:
1. Actively participate, and respectful verbal and nonverbal interaction with all opinions must be shown at all times.
2. Since differing views will be expressed, the teacher and the student(s) will mutually maintain a safe environment for courteous dialogue.
3. Respect is to be shown for all CSUN property.
4. No food or beverages will be permitted in the classroom. Snacks must be eaten outside between the designated breaks.
5. Warnings for behavior / discipline problems will be given once. Any further problems will result in a phone call to the parent(s) or guardian(s) and possible dismissal from the program.

SAEP Electronics Policy:
Cell phones, music players and headphones are not permitted to be used during class hours.
a. Please put your cell phone on silent (NOT vibrate).
b. No texting is allowed during class.
You will be given one verbal warning if the above is not followed. Should a second warning be necessary, your cell phone, music player and/or headphones will be confiscated and held by the teacher until after class. If a third time occurs, your cell phone, music player and/or headphones will be confiscated and held in the SAEP office and MUST BE PICKED UP BY A PARENT.
Adventures in Algebra - Road 3

After reading through the syllabus, please sign and date and have your student return it to class. The signature constitutes your commitment to the class as we partner to make the next five weeks a life-long educational experience for your student.

**Student/ Parent Agreement:**
Please bring this signed and dated *Adventures in Algebra - Road 3* syllabus agreement to class tomorrow.

If you do not understand any portion of this syllabus, or if you have any questions regarding this class, please do not hesitate to email the teacher.

We have read and understand the contents of this syllabus.

Student name ______________________________________________________

Student signature____________________________________________________

Date__________________

Parent/Guardian name _______________________________________________

Parent/Guardian signature_____________________________________________

Date__________________