

## Joshua Christian High School Course Description

Algebra I

Grade 9

**I. Course Description**

The study of Algebra covering concepts from the solving of basic equations to the solving of quadratic equations. The course will cover important mathematical terms as well as learn procedures to solve problems, graph equations, etc.

**II. Course Goals**

1. Student will comprehend the eternal and absolute attributes of God who is the creator of an ordered and orderly universe.
2. Student will develop a sense of responsibility to do the best work she is capable of producing.
3. Student will be equipped to meet the college-level entrance requirements for algebra, as well as to be able to solve everyday practical problems.

**III. Course Objectives**

1. Student will understand how to use signed numbers.
2. Student will be able to evaluate and simplify expressions.
3. Student will be able to solve equations with one unknown.
4. Student will be able to add like terms.
5. Student will be able to solve number word problems.
6. Student will be able to simplify, understand, and complete natural number exponents.
7. Student will be able to factor polynomials.
8. Student will be able to solve percent word problems.
9. Student will be able to solve value word problems.
10. Student will be able to add rational expressions.
11. Student will be able to simplify radicals.
12. Student will be able to solve and graph linear equations.
13. Student will be able to solve simultaneous equations.
14. Student will be able to solve uniform motion problems.

**IV. Course Outline (two semesters)**

1. General concepts
2. Addition & subtraction of expressions
3. The distributive law
4. Combining like terms
5. Subtraction of polynomials
6. Introduction to equations

7. Solution of simple equations
8. Combination equations
9. Equations with like terms
10. Multiplying of terms
11. Multiplication of a polynomial by a monomial
12. Multiplication of polynomials
13. Factoring by using reverse process of multiplying
14. Simple factoring
15. Mixed factors
16. Factoring polynomials into 2 binomials, using parentheses
17. Complex factors
18. Common factors
19. Difference of 2 squares
20. Repeated factoring
21. Reducing of fractions
22. Reduction of general fractions
23. Factoring and reducing of fractions
24. Division of fractions
25. Addition of fractions with same denominators
26. Common denominators
27. Addition of fractions with different denominators
28. Equations containing fractions
29. Expressions using words
30. Solution of word problems
31. Square roots
32. Addition of roots
33. Extracting roots and addition of roots
34. Multiplication of roots
35. Review of combining radicals and multiplying radicals
36. Rationalizing of fractions
37. Review of roots and rationalizing
38. Alternate forms for rationalizing
39. Cube roots and other roots
40. Review of roots
41. Combining of roots
42. Finding the square root
43. Completing the square
44. Quadratic formula
45. Developing the quadratic formula
46. Plotting of points
47. Slopes and rise over run
48. Graphs of equations
49. Review of equations
50. Review of principles for solving equations
51. Graphs of equations

52. Review of principles for solving equations
53. Graphs for simultaneous equations
54. Slopes in equations
55. Review of graphing methods
56. Simultaneous equations
57. Advanced simultaneous equations
58. Review for final exam

#### IV. Teaching Methods

- A. Videotaped instruction of each day's concepts
- B. Lesson worksheets to accompany video instruction
- C. One-on-one discussion of concepts and trouble spots

#### V. Method of Evaluation

- A. Components
  1. Daily worksheets
  2. Quizzes
  3. Tests
  4. Final exam

- B. Grading Scale

100-90% = A  
89-80% = B  
79-70% = C  
69-60% = D  
Lower = F

#### VI. Instructional Material

- A. *Algebra 1*, (1992) Leonard Firebaugh, Keyboard Enterprises, Huntington Beach, California