

## ALGEBRA I – Unit Plan and Syllabus

This is the course of study for Algebra I. This course should take about one school year to complete, but some students may take more time or less time to do so. Each number represents one class period (or one quiz) and the skills that students should master – as demonstrated in class or on a quiz. Students will have “completed” a topic when they have demonstrated said mastery. Students will have passed Algebra I when they have completed everything on this list.

Date Completed, Grade

### Unit I – Numbers

1. Identify variables and constant terms; develop equations. \_\_\_\_\_
2. Use order of operations to compare real numbers. \_\_\_\_\_
3. Add, subtract, multiply, divide with positive and negative numbers. \_\_\_\_\_
4. Balance equations and solve for “x.” \_\_\_\_\_
5. Plot points on a graph. \_\_\_\_\_
6. Practice and review. \_\_\_\_\_
7. Take Unit I test. \_\_\_\_\_

### Unit II – Equations

8. Solve one-step equations (with one variable). \_\_\_\_\_
9. Solve two-step equations. \_\_\_\_\_
10. Solve multi-step equations (with variables on both sides). \_\_\_\_\_
11. Develop equations and solve those equations. \_\_\_\_\_
12. Use given formulas to solve problems. \_\_\_\_\_
13. Calculate mean, median, mode, and central tendency. \_\_\_\_\_
14. Understand and use algebraic reasoning. \_\_\_\_\_
15. Practice and review. \_\_\_\_\_
16. Take Unit II test. \_\_\_\_\_

### Unit III – Inequalities

17. Solve and graph inequalities with one variable. \_\_\_\_\_
18. Solve multi-step and compound inequalities. \_\_\_\_\_
19. Solve absolute value problems (with one variable). \_\_\_\_\_
20. Solve word problems involving absolute value and inequalities. \_\_\_\_\_
21. Practice and review. \_\_\_\_\_
22. Take Unit III test. \_\_\_\_\_

### Unit IV – Ratios and Proportions

23. Set up ratios, and convert ratios to fractions. \_\_\_\_\_
24. Set up proportions (with variables). \_\_\_\_\_
25. Solve problems using proportions (and cross-multiplying). \_\_\_\_\_
26. Solve problems involving percents and proportions. \_\_\_\_\_
27. Calculate probability (including multiple events). \_\_\_\_\_
28. Practice and review. \_\_\_\_\_
29. Take Unit IV test. \_\_\_\_\_

Unit V – Functions and Graphs

- 30. Read and interpret various graphs. \_\_\_\_\_
- 31. Identify domain and range in equations. \_\_\_\_\_
- 32. Graph functions. \_\_\_\_\_
- 33. Develop equations from “x-y” tables. \_\_\_\_\_
- 34. Identify and calculate direct variation in word problems and graphs. \_\_\_\_\_
- 35. Describe number patterns (using inductive reasoning). \_\_\_\_\_
- 36. Practice and review. \_\_\_\_\_
- 37. Take Unit V test. \_\_\_\_\_

Unit VI – Slope, Linear Equations, and their Graphs

- 38. Find the slope, given two points. \_\_\_\_\_
- 39. Write an equation in slope-intercept form. \_\_\_\_\_
- 40. Graph equations that are given in slope-intercept form. \_\_\_\_\_
- 41. Convert equations into slope-intercept form. \_\_\_\_\_
- 42. Determine if lines are parallel or perpendicular (or neither). \_\_\_\_\_
- 43. Graph absolute value equations. \_\_\_\_\_
- 44. Develop equations and solve those equations (in slope-intercept form). \_\_\_\_\_
- 45. Practice and review. \_\_\_\_\_
- 46. Take Unit VI test. \_\_\_\_\_

Unit VII – Systems of Equations

- 47. Solve systems of equations using the graphing method. \_\_\_\_\_
- 48. Solve systems of equations using the substitution method. \_\_\_\_\_
- 49. Solve systems of equations using the elimination method. \_\_\_\_\_
- 50. Solve systems of inequalities using the graphing method. \_\_\_\_\_
- 51. Develop two equations from word problems and solve those systems. \_\_\_\_\_
- 52. Practice and review. \_\_\_\_\_
- 53. Take Unit VII test. \_\_\_\_\_

Unit VIII – Exponents and Polynomials

- 54. Understand what exponents mean and how to use exponential notation. \_\_\_\_\_
- 55. Understand and use scientific notation. \_\_\_\_\_
- 56. Add, subtract, multiply, and divide with exponents. \_\_\_\_\_
- 57. Factor with exponents. \_\_\_\_\_
- 58. Understand and graph exponential functions. \_\_\_\_\_
- 59. Develop equations and solve those equations (involving exponents). \_\_\_\_\_
- 60. Practice and review. \_\_\_\_\_
- 61. Take Unit VIII Test \_\_\_\_\_

- 62. Algebra I Final Exam/Project/Make-Up \_\_\_\_\_