



**Joplin High School  
MA04 Algebra 1  
Math Department  
Academic Weight: 4.0  
1 Credit for 1 Year  
Syllabus and Expectations**

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**Course Description:**

**Algebra 1 is a foundation for your successful progression through higher-level math courses.**

**Prerequisites:**

**9th Grade – Recommendation from middle school,  
10th Grade – Grade of A both semesters in Math Applications,  
11th Grade – Successful completion of Math Applications and Geometry A.**

**Major Course Objectives:**

- 1. Write an algebraic expression, which may include an exponent, and evaluate an expression using the order of operations.**
- 2. Use unit analysis to verify that a variable expression will give a reasonable calculation based on the units in the answer.**
- 3. Write and use a linear equation or inequality to model and solve a problem.**
- 4. Write a rule for a function or make a graph given the inputs and outputs, or write the pairing given the rule or the graph.**
- 5. Compare and order real numbers and find their approximate location on a number line.**
- 6. Perform operations on real numbers.**
- 7. Given a linear equation in one variable, solve the equation by writing equivalent equations.**
- 8. Write a linear equation to model a real-life situation, and use the solution of the equation to help solve a problem.**
- 9. Solve problems involving proportions.**
- 10. Given an equation with two or more variables(literal equation), solve the equation for a specified variable.**
- 11. Graph a linear equation or function.**
- 12. Compare linear equations by their slopes and y-intercepts.**
- 13. Write a linear equation to model a real-life situation and use the equation to help solve a problem.**

14. Construct a scatter plot, determine an equation for a line of best fit, make predictions based on a set of data, make conjectures about possible relationships between two characteristics of a sample based on a set of data.
15. Solve a linear inequality in one variable. (local)
16. Write a linear inequality to model a real-life situation and use the solution of the inequality to help solve a problem.
17. Solve/Graph an absolute value equation in one variable.
18. Use and solve systems of linear equations with 2 variables.
19. Use and solve systems of linear inequalities with 2 variables.
20. Use properties and definitions of exponents to simplify expressions.
21. Use scientific notation to represent very large and very small numbers.
22. Write and graph exponential growth and exponential decay functions.
23. Find the probability of an event(s).
24. Calculate statistical measures of a set of data.
25. Represent and analyze data distributions.
26. Add, subtract, and multiply polynomials.
27. Factor polynomials.
28. Graph quadratics.
29. Solve quadratic equations and functions.
30. Simplify radicals.
31. Solve radical equations.
32. Use radicals to solve geometry problems.
33. Simplify rational expressions and solve rational equations.

**Course Goals and Topics Covered in the Course:**

Topics covered in Algebra 1 include: number relations, equations, polynomials, factoring, fractions, functions, inequalities, graphs, systems of equations, powers, roots, and radicals

**Required Textbook and Recommended Readings:**

Textbook: Algebra 1 (Online Access)

**Special Resources (Including INTERNET RESOURCES):**

N/A

**Supplies and Fees:**

You will need at least one notebook right away. For your notes, use whatever you like. You need to bring your notes along with your computer every day. Since I will be asking you to turn in your quizzes, you will need paper that can be taken out of a notebook. Pens and pencils are up to you, as long as you bring something to write with every day. You don't need a ruler or a straight edge, I've got plenty for you to use in class. You will need access to a scientific calculator immediately. There is one on your computer, if you don't already have one.

**Evaluation Of Course (Includes grading percentage, participation)**

- A. Grading Scale  
90 -100% A

**80 - 89% B**  
**70 - 79% C**  
**60 - 69% D**  
**0 - 59% F**

**B. Grade Distribution per Activity (percentage or points)**

**Now, I know this is probably going to be your first question. How are grades figured? Your grade will be figured completely on the mastery you show on the 33 objectives for Algebra 1. There is no percentage for homework, no percentage for tests, no percentage for participation, etc. Each objective will count for the same percentage of your grade. For example, if there are 10 objectives in the first quarter, then each objective will count for 10% of your grade.**

**C. Class Participation and Expectations:**

There are some rules that are obvious and do not need posting. Cussing, biting, hitting, spitting, scratching, clawing, throwing people out of the window, etc. will not be allowed in this class. Otherwise, I have only five (5) rules in this class. They are as follows:

1. No talking when I am talking. Talking at the right time is relative. There are times when speaking is necessary and times when it shouldn't be done. However, when I am instructing, you cannot talk to each other. Otherwise, please speak. You cannot completely learn if you don't ask questions and interact. Besides, the best way to learn something is to actually teach it.
2. Be relaxed and comfortable. Do not be afraid of this class or it's material. I'm here to make sure you learn Algebra and not fail. None of us can perform to our best in anything if we aren't relaxed. I reserve the right to move you if the need arise. One other note here, you might want to dress warm, I like it cool in my room. You have been warned.
3. Come prepared. Bring all your materials every day. It's part of being mature.
4. Respect others in the class. That means property, space, right to learn, feelings, etc. We WILL keep a positive atmosphere in this class. Also, clean your desk area after every period.

You will work with me the first couple of days to establish behavior rules and consequences for not following the rules. Food and drinks are not allowed in this class since there are computers in the classroom. The policy for electronic devices from the handbook will be followed in this class.

**D. Special Projects, Writing Activities, and Assessments**

**E. Academic Dishonesty Policy**

Students are expected to demonstrate honesty and integrity while in attendance at Joplin High School. Each student is expected to do his or her own work. This includes test-taking, homework, class assignments, and the original creation of essays, compositions, term papers and scientific research. Sharing work with another student during tests, on in class essays or assignments, or on homework is considered cheating. Having access to answers or calculator or computer information constitutes intent to cheat. All work submitted by students should be a true reflection of their efforts and abilities. If submitted work is not, then the student has manifested unacceptable academic behavior. The following criteria are considered cheating:

- claiming credit for work not the product of one's own honest effort
- providing unwarranted access to materials or information so that credit may be dishonestly claimed by others
- knowledge and toleration of either of the foregoing

Any behavior which can be defined as cheating represents a violation of mutual trust and respect essential to education at Joplin High School. Students who cheat should expect to be confronted by their teacher and/or a principal and receive the following penalties:

- zero on the assignment
- notification of parents
- minimum of 3-day assignment to ISD or ASD

If a student is found to have cheated a second time, the student will be referred to an assistant principal. Consequences may include: drop from the class, loss of credit and an "F" appearing on the transcript. No replacement course will be allowed.

**F. Late Work/Make-up Work**

Late work is irrelevant for this course since we do not take grades on homework. If you miss a quiz, you miss the quiz. It will not count against you, but you are still required to know the information. As far as missing a test day, you will have to make up the test the day you come back to class.

**G. Tutoring and Extra Help**

If you need help at any time, please feel free to ask. There are math tutors here before and after school every day of the week except Wednesday mornings and Friday afternoons. Check the tutoring schedule in my room to see where these centers are.

**Calendar Of Events/Tentative Schedule For Units Of Study**

What follows is an outline of the entire year that we will follow pretty closely. I may replace the book assignments or worksheets with the eWorkbook that can be found online from time to time. The numbers in parentheses are the pages in your book that you can find that specific unit along with the RECOMMENDED

assignment for that day. We will check these assignments in class from time to time to aid you in the mastery of each objective. Feel free to ask questions about the assignments. The one requirement for these assignments is that they are to be worked on until the end of class.

I. UNIT 1

- A. Evaluating expressions (5: 6-11, 15-17, 26-35, 38, 40, 41)
- B. Order of operations(10: 2-19, 24-26, 29, 31, 34)
- C. Writing expressions (18: 3-21, 29, 31-33)
- D. Equations and inequalities (24: 3-9, 14, 17-24, 29-31, 35-38)
- E. Problem solving (31: 4-6, 8-12, 15-17, 24-27)
- F. Functions and tables (38: 1, 3-5, 9, 12-15, 20-21, 23-24)
- G. Review
- H. Test

II. UNIT 2

- A. Integers and rational numbers and the number line (67: 4-15, 22-24, 26, 40, 42-44, 53-54, 58a)
- B. Addition (77: 3-8, 14-17, 19-20, 26-29, 32-34)  
Subtraction (82: 3-8, 11-12, 18-19, 26-27, 32-34)
- C. Multiplication (91: 3-15, 32-35, 37-38, 51, 53)
- D. Matrices (95: 1-13)
- E. Distributive property (99: 3-16, 21-23, 28-36, 51-52)
- F. Division (106: 3-8, 11-18, 21-23, 33-35, 42, 44, 46, 52) (125: 30)
- G. Review
- H. Test

III. UNIT 3

- A. Solving equations (137: 3-10, 15-20, 24-27, 30-33, 42-46)
- B. Solving two-step equations (144: 2-11, 16-17, 21-22, 26-28, 37-38)
- C. Solving multi-step equations (150: 5-8, 14-16, 20-22, 27-28)
- D. Solving equations with variables on both sides (157: 3-8, 15, 18-21, 27 30-34)
- E. More on solving equations (157: 9-14, 16, 22-26, 28, 50)
- F. Solving absolute value equations (393: 6-12, 15-20, 22-28, 32)
- G. Review
- H. Mid-Chapter Test
- I. Ratios and proportions (165: 3-12, 17, 19-20, 23-24, 32-34, 46, 50-51)
- J. Cross-Multiplication (171: 3-15, 18-24, 33-34)
- K. Similar Figures (175: 1-5) worksheet 175
- L. Solving percent problems (179: 3-7, 10-19, 21-23, 26-28, 33-34)
- M. Percent of change (183: 1-14)
- N. Solving for specific variable (187: 11-17, 20-25, 27-28)

- O. Review
- P. Test

#### IV. UNIT 4

- A. Plotting points (209: 3-21, 29-32)
- B. Graphing lines (219: 3-7, 10-16, 23-25)
- C. Graphing using intercepts (229: 4-9, 18-22, 28-33, 38-40)
- D. Slope of a line (239: 4-18, 24-28)
- E. Slope-intercept form (Parallel) (247: 3-9, 21-26)  
(worksheet 4.5: 7-10, 24-27)
- F. Slope-intercept graphing (247: 10, 17-20, 32-33)  
(worksheet 4.5: 1-6, 13-20)
- G. Linear function graphing (265: 3-7, 14-17, 27-29, 34-35)
- H. Review
- I. Test

#### V. UNIT 5

- A. More on slope-intercept form (286: 6-13, 18-22, 24-26, 29-32)
- B. Writing equation from two points (296: 11-15, 17-18, 22-27)
- C. Point and the slope/Point-slope form (305: 3-8, 12-16, 23-28)
- D. Standard form (314: 1-3, 5-7, 11-15, 23-24, 31-34)
- E. Equations of parallel and perpendicular lines (322: 3-8, 18-22, 28, 32)
- F. Line of best fit (328: 3-5, 8-9, 15)
- G. Scatter plots (328: 13-14, 18)
- H. Predictions from scatter plots (328: 6-7) (338: 3-4)
- I. Review
- J. Test

#### VI. UNIT 6

- A. Inequalities in one variable (359: 10-11, 14-19, 24-26)  
(366: 3-14, 30-33)
- B. Multi-step inequalities (372: 3-12, 21-24, 29-30, 37-38)
- C. Compound inequalities (384: 3-5, 10-13, 15-18, 21-24)
- D. Graph absolute value equations (397: 1-7)
- E. Solve absolute value inequalities (401: 4-7, 9-14, 21)
- F. Graphing inequalities on coordinate plane (409: 3-8, 15-24)
- G. Review
- H. Test

#### VII. UNIT 7

- A. Solving linear systems by graphing (431: 3-10, 12-15, 22)
- B. Solving linear systems by substitution (439: 3-5, 9-14)
- C. Solving linear systems by substitution--with decimals  
(439: 15-16, 20-24, 26, 31-32)

- D. Solving linear systems by elimination (447: 6-14, 17-18, 22, 26)
- E. More on elimination (454: 9-19, 21-22, 26-27)
- F. Special types of linear systems (462: 5-9, 15-20, 24, 28-29)  
(454: 37-38)
  - 1. parallel lines (no solution)
  - 2. same line (infinite solutions)
- G. Solving systems of linear inequalities (469: 3-9, 17-21, 25, 27)
- H. Review
- I. Test

#### VIII. Linear Programming Project

#### IX. SEMESTER FINAL

The plan is to review for 2 or 3 days before the final. As of right now, the plan is to have the final count only if it helps your grade. For everyone, not just those that qualify for quality attendance.

#### X. UNIT 8

- A. Exponent properties of multiplication (492: 3-35, 40-44, 53)
- B. Exponent properties of division (498: 3-32, 37, 42-43)
- C. Negative and zero exponents (506: 3-21, 28-38, 44-47)
- D. Fractional exponents (510: 1-12)
- E. Scientific notation (515: 6-11, 15-21, 30, 33-34, 39-43)
- F. Exponential growth (524: 38-40, 44)
- G. Exponential growth II (524: 4, 9, 22-23, 28)
- H. Exponential decay (535: 3, 5, 7-8, 10, 19, 21, 47-49)
- I. Review
- J. Test

#### XI. UNIT 13

- A. Simple Probability (846: 1, 3-21, 27)
- B. Permutations (853: 1, 4-8, 16-23, 28-30, 32-34)
- C. Combinations (858: 1-11, 15-19, 23-26)
- D. Probability of compound events (864: 1, 3-21, 27)
- E. Analyzing surveys and samples (873: 1-11, 13-16)
- F. Central tendency: Median, mean, mode (877: 1, 3-16, 19-20)
- G. Data: Stem-and-leaf and Histograms  
(883: 8-9, 11-12, 17, 19b, 20-21)
- H. Box-and-Whisker plots (889: 3-9, 10-12, 17)
- I. Review
- J. Test

#### XII. UNIT 9

- A. Adding and subtracting polynomials (557: 6-8, 15-26, 33-34)

- B. Multiplying polynomials (565: 6-14, 20-24, 27-30, 44, 49-50)
  - FOIL
  - Distributing
  - Horizontally vs. Vertically
- C. Multiplying polynomials: special cases (572: 4-7, 10-14, 18, 23-30)
- D. Factoring common factor (578: 17-25 and worksheet 9.4)
- E. Mid-Chapter Test
- F. Factoring quadratic trinomials (586: 3-11) (596: 7, 9, 10-11)
  - Undo FOIL
- G. More practice on factoring trinomials (596: 12, 15-19, 21-22)
  - (599: 7-13)
- H. Factoring special cases (603: 3-12, 15-18, 24)
  - Perfect square trinomials
  - Difference of two perfect squares
- I. Factor by grouping (610: 3-6, 13-18, 26-27, 35-38)
- J. Review
- K. Test

### XIII. UNIT 10

- A. Graphing simple parabolas (632: 1, 3-5, 8-9, 11-12, 18-20, 25-27)
- B. Graphing parabolas with a "b" term (638: 3-7, 12, 15-17, 27-28)
- C. More practice on graphing parabolas
- D. Solving a quadratic equation by graphing
  - (647: 6-8, 10-12, 15-16, 22-23)
- E. Solving simple quadratics (655: 3-21, 30-32)
- F. Mid-Chapter Test
- G. Solving quadratic by factoring (578: 3-5, 27-30) (586: 20-28)
- H. Quadratic Formula (674: 3-8, 11-21, 25-26)
- I. The Discriminant (681: 3-27)
- J. Review
- K. Test

### XIV. End Of Course Exam

### XV. UNIT 11

- A. Simplifying radicals (723: 3-23)
- B. Rationalizing denominators (723: 26-33, 46-49)
  - Don't get caught with your radical down
- C. Operations with radicals (723: 34-45, 55-60)
- D. Solving radical equations (732: 3-19, 21)
- E. Pythagorean Theorem (740: 6-11, 15, 23-26, 29)
- F. Distance and midpoint formulas (747: 5-9, 22-27, 34, 38-40)
- G. Review
- H. Test

### XVI. UNIT 12



- A. Simplifying rational expressions (797: 3-6, 8, 15-16, 20-25, 28-31)
- B. Multiplying and dividing rational expressions (806: 3-8, 14-18, 26)
- C. Simplify complex fractions (811: 1-9, 13)
- D. Add/Subtract rational expressions (816: 4-10, 13-16, 18-25, 29-31)
- E. Solving rational equations (823: 4-5, 14-16, 18, 20)
- F. Review
- G. Test

## XVII. SEMESTER 2 FINAL

Depending on the time left, we will review and test just like the first semester final.

XVIII. Let's go home!