

Syllabus for

ALGEBRA I

with Ms. Gilbert

Textbook:

Carter, J.A. et al. (2014). **Algebra 1**. Columbus, OH: McGraw-Hill Companies, Inc.

Supplies Needed:

Textbook

Notebook for notes

Binder

Loose leaf paper (for assignments)

Graph paper

Calculator

Pencils

Objectives/Common Core Curriculum: (some listed correspond with Algebra II)

- I. Seeing Structure in Expressions
 - A. Interpret the structure of expressions
 1. Interpret expressions that represent a quantity in terms of its context.
 - a. Interpret parts of an expression, such as terms, factors, and coefficients.
 - b. Interpret complicated expressions by viewing one or more of their parts as a single entity.
 2. Use the structure of an expression to identify ways to rewrite it.
 - B. Write expressions in equivalent forms to solve problems
 3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression
 - a. Factor a quadratic expression to reveal the zeros of the function it defines.
 - b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.
 - c. Use the properties of exponents to transform expressions for exponential functions.
 4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems.
- II. Arithmetic with Polynomials and Rational Expressions
 - A. Perform arithmetic operations on polynomials
 1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
 - B. Understand the relationship between zeros and factors of polynomials

2. Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.
 3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.
- C. Use polynomial identities to solve problems
4. Prove polynomial identities and use them to describe numerical relationships.
 5. Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.
- D. Rewrite rational expressions
6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.
 7. Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.
- III. Creating Equations
- A. Create equations that describe numbers or relationships
1. Create from equations and inequalities in one variable and use them to solve problems.
 2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
 3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable in a modeling context.
 4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
- IV. Reasoning with Equations and Inequalities
- A. Understand solving equations as a process of reasoning and explain the reasoning
1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
 2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
- B. Solve equations and inequalities in one variable
3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
 4. Solve quadratic equations in one variable
 - a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.

- b. Solve the quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them in $a \pm bi$ for real numbers a and b .
- C. Solve systems of equations
5. Prove that a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
 6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
 7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.
 8. Represent a system of linear equations as a single matrix equation in a vector variable.
 9. Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimensions).
- D. Represent and solve equations and inequalities graphically
10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
 11. Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.
 12. Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

Grading Scale:

<u>Percent</u>	<u>Letter Grade</u>	<u>4.0 Scale</u>
100 – 99	A+	4.0
98 – 95	A	4.0
94 – 93	A-	3.7
92 – 91	B+	3.3
90 – 85	B	3.0
84 – 83	B-	2.7
82 – 81	C+	2.3
80 – 73	C	2.0
72 – 71	C-	1.7
70 – 69	D+	1.3
68 – 63	D	1.0
62 – 61	D-	0.7
60 – 0	F	0.0

Math Guidelines:

1. You **MUST** show all work unless I specify otherwise. I will show you in the examples I give how I want you to show your work. When in doubt, show your work. You may receive partial credit for your work even if your final answer is wrong. If you do not show your work it is likely that you will get no credit.
2. Please get a 1 subject notebook or use a section in your binder that is set aside just for math notes. All notes should be written in the notebook with all pages intact. In other words, don't tear the pages out. Using both sides of the page will help you save space and get more notes in one place.
3. All graded assignments should be kept in order in a folder or binder.
4. All work **MUST** be done in pencil.
5. The date should be on the top of every page of notes and homework papers.
6. Please put the page number at the top of each assignment that is done from the book. I won't know what to grade if you don't tell me.
7. Number and work each problem clearly. If I can't read your work or tell which number it is, you will receive no credit.
8. All work is due the day after it is assigned unless otherwise specified. All corrections are due the day after I return your graded assignment.
9. If you miss a day, all make-up work should be turned in no later than 2 days after your absence.
10. DO NOT BE AFRAID TO ASK QUESTIONS WHEN YOU DON'T UNDERSTAND A PROBLEM. I am here to help you and to make sure that you do well in this course. 😊

Grading:

1. It is very important that you complete the assignments I give as it is a way for you to understand the material. As a result, all assignments will be graded. While you are expected to give me your best work, I know that mistakes will be made.
2. You may correct any homework problems you miss. You will receive full credit for correct answers as long as you explain what you did wrong and what you should have done to get the correct answer. Make sure you show your work along with the explanation.
3. You will also complete some math activities. I will tell you how many points each one is worth when it is assigned.
4. There will be quizzes and some may be "pop" quizzes. Notice will be given for regular quizzes, but no notice will be given for pop quizzes.

5. There will be several tests. Don't panic! You will have time to prepare for them and they won't be that bad. ☺
6. You may correct any questions that you miss on tests. You will receive $\frac{1}{2}$ credit for all corrections that are right. Like with the homework corrections make sure you explain what you did wrong and what you should have done to get the correct answer. Make sure you show your work along with the explanation.
7. Should the need arise there may be an opportunity for extra assignments or extra credit. No extra credit will be given to students who have missing assignments and/or make little effort on the tests. Extra credit, if it is needed, is to help the students who make a strong effort in class, not to reward those who choose not to do the work.
8. It is important that you do your best work on your daily assignments, activities, and tests. All of these work together to make up your grade for the class. Daily assignments and activities will make up 25% of your grade, quizzes 25% of your grade and tests make up the other 50%. So, you can see that you need all the points you can get on everything to be successful in this class.

Daily Assignments Grading Scale:

To begin the class, the homework from the previous night is graded. You will be told the point values of each problem and the total number of points on the assignment. After the assignment is graded, you will figure out how many you got right out of the total and find your percentage. When the grades for the daily homework are recorded in Progress Book all assignments are worth 10 points. The percentage earned is translated to the following scale:

90-100%	10 points
80-89%	9 points
70-79%	8 points
60-69%	7 points
50-59%	6 points
40-49%	5 points
30-39%	4 points
20-29%	3 points
10-19%	2 points
1-9%	1 point

Assignments not attempted are worth 0 points, which are entered as missing assignments.

General Classroom Rules

- The main rule in this class is that everyone gets along with everyone else while you are in here.
- Follow the school rules while you are in my class.

- If you have any issues with another person in the class, please leave it at the door. Please do not visit those issues on the rest of us in the class. You can resolve those issues at a different time, but class time is not the appropriate time to do that.
- Please be respectful of everyone in the class, including the teacher. I am very open to having a conversation with you and I welcome your feedback; however, please be aware of your tone and non-verbal cues. Also, the time when we are going over the lesson is not the appropriate time to speak with anyone unless it is related to the specific lesson.
- No making fun of other students. Everyone should feel safe enough to ask questions about the material without being ridiculed. I am very much a stickler on this rule.
- Any time announcements come on the loud speaker, everyone is to be quiet so we can all hear what is being said.
- When given time in class to work, you must remain in your seat working quietly on the assignment. Other students appreciate the quiet so they can concentrate.
- Work hard in class. You need this class to graduate. Everyone is required to have 4 credits of math and pass Algebra II (or its equivalent). To get to Algebra II, you must first pass Algebra I and Geometry. Don't give up. When it seems tough come see me. I am here to help you. As Joe Dirt says, "Keep on keepin' on."
- Practice studying for math tests. I will give you hints and strategies to do this.
- Clean up after yourself. If you drop something on the floor, please pick it up and put it away or throw it in the trash.
- Put Ms. Gilbert at the top of your "Favorite Teachers" list. ☺
- Most importantly, let's have fun learning Algebra. ☺

Important Dates:

End of 1 st grading period	October 2, 2015
End of 2 nd grading period	November 13, 2015
End of 3 rd grading period	January 15, 2016
End of 4 th grading period	February 26, 2016
End of 5 th grading period	April 15, 2016
End of 6 th grading period	May 27, 2016

I, _____, have read and understand the information that
(students, print your name on the line)

is contained in the pages of this syllabus. Further, I agree to follow the expectations that

Mrs. Gilbert has placed on me to the best of my ability.

(students, sign your name on the line)

(Date)

Parents/Guardians:

I am pleased to have your student in my Algebra I class. Please read over the information in this syllabus, so that you are aware of my expectations of your student. Also, I invite you to contact me any time you have a question or concern. I can be reached by calling the school phone number 419-884-2112, email gilbert.michelled@lexington.k12.oh.us, or simply by sending a note with your student.

Please sign below stating that you took a few minutes to look this over and so that your son or daughter can receive points for his or her first daily assignment.

Thank you for your time.

Parent/Guardian Signature