

Algebra 2

2019/2020 ~ Lansing Catholic High School

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I. Course Description

Algebra 2 will cover a variety of different functions and equations, and methods of how to solve them. Students will be expected to work in a variety of different ways including individual work, group work, and classroom discussions.

II. Course Content

- a. *Areas of Study:* Equations and Inequalities, Linear Equations and Functions, Linear Systems and Matrices, Quadratic Functions and Factoring, Polynomials and Polynomial Functions, Rational Exponents and Radical Functions. For a more detailed outline please see the *Course Schedule* at the end of this syllabus.
- b. *Skills - At the end of this course you will be able to:* Use a variety of different equations and functions to solve and find solutions to specific questions. Aside from the mathematical skills, you will further develop your problem solving and critical thinking skills, which will be beneficial to you in any profession in the future.
- c. *Reading & Writing Requirements:* Students will be expected to read word problems and diagnose what the problem is looking for on a regular basis. Students will then be expected to write the answer to these problems and clearly explain their thought processes.
- d. *Course Schedule* – For a tentative plan see the table at the end of the syllabus, however be aware it is subject to change as we progress throughout the semester.

III. Course Materials

- a. Textbook – *Algebra 2*. Ron Larson, Laurie Boswell, Timothy Kanold, and Lee Stiff. St. McDougal Littell, 2008.
- b. General supplies –
 - i. Students are expected to have a binder to keep their daily assignments and warm-ups in. This binder will be checked for completion at the end of every semester.
 - ii. A pencil or pen to write with everyday.
 - iii. It is required that students use TI-84 Plus/TI-84 Plus Silver Edition graphing calculators and bring them every day.
 - iv. Chromebook

IV. Course Policies

- a. *Attendance/absences/tardiness* –
 - i. If you are absent, please consult the class website to find the link to our class outline. Handouts will be able to be downloaded from the website.
 - ii. For excused absences you have as many days as you are absent to make up the work as is school policy.
 - iii. If a student does not arrive in class before the bell rings they must go to the office and receive a green slip to be allowed into class.
- b. *Make-up work/late work* –
 - i. Late work will be accepted one day late for 50% credit. Any assignment turned in more than a day late will receive no credit unless prior arrangements have been made with me. Late assignments due to excused absences will be handled in accordance with the Student Handbook. If a student has multiple missing assignments they will be required to attend the LAP program.
 - ii. It is your responsibility to find out what you have missed when you are absent, to be prepared when you return to class, and complete any work that you have missed. Ask your classmates for this information, or check the outline on the class website.
 - iii. If you miss a test you should be prepared to make it up on the day that you return to school. Class time will not be given to make up a test. This should be done before school, after school, during homeroom, during my prep period, or your study hall. Make sure that you post the information for your makeup on the sheet by my door.

c. *Classroom rules/expectations* –

i. **Daily Routine**

1. Students pick up their folders if they are available in the back.
2. Class prayer
3. ACT warm up problem.
4. Turn in homework.
5. Recap of previous lesson and introduction of new material
6. HW Quiz
7. Class Work time

ii. **Classroom Protocol**

1. Students will be considered tardy if they come to class unprepared without materials or if they arrive after I have shut the door. If the door is shut, please do not knock. Wait silently by the door until whatever we are doing is finished and then I will open the door for you.
2. Students will also be considered tardy if they are found out of their assigned seat before classroom work time begins.
3. Students should bring a calculator to school every day. If a student forgets a calculator they may borrow one, but they will have to spend 15 minutes in my room before or after school. If a student does not meet this requirement they will be given a detention. On a test day a student may borrow a calculator but will be deducted 5%.
4. Students are allowed to leave twice during each quarter for a 5-minute span. Each quarter pass that is not used can be used to earn 2 bonus points.
5. This class will often involve classroom discussion and us working as a team. I do not expect you to raise your hand every time you have something to add, but I do expect you to be responsible and listen and allow others to express their opinions. Side conversations are rude and distract from the goal of the entire class and will not be tolerated.
6. RESPECT

iii. **Responsibility**

1. Students are responsible for finding out what work they missed during their absences.
2. Students are responsible for checking the website on snow days to see if there is an assignment.
3. Students are responsible for checking skyward and finding out if they are missing any assignments.
4. Students are responsible for signing up for test retakes.

d. *Disciplinary policies*

i. Cheating in any form is unacceptable. If you cheat:

1. you will receive a zero on the assignment/quiz
2. your parents and the principal will be notified
3. you will still need to complete the assignment to work towards mastery of the material but it will be for no credit

- ii. Gum is not permitted in the classroom.
- iii. Students who come to class not in the proper dress will have to hand the article over until the end of the day if that is possible, or will need to go down to the office to remedy the issue.

e. Electronic Device

- i. Cell Phones are not permitted in class and will be confiscated and given to Mr. Wolcott if found.
- ii. If a student is found using an electronic device for something that is not educational it will be confiscated. To receive the device back a student will need to come in and spend 15 minutes with me going over mathematic material. If the same student has their device confiscated a second time it will be given to the office.
- iii. Apple Watches can't be worn on a test day.

f. *Homework policy*

- i. Daily assignments will either be graded or not graded. A graded assignment must be turned in at the beginning of class on the following day that it is assigned. If you forgot your assignment in your locker or did not remember to turn it in that day, you can turn it in the next day for half credit. Assignments that are not graded must still be completed by the end of the semester for the notebook check. This includes showing all work, not simply writing the answers which will be given to each assignment.
- ii. Assignments will be graded as follows. Each homework assignment that is graded will be worth 5 points. 2 points will be given from the HW quiz, the remaining points will come from attempting the problems and turning in the HW.
- iii. Daily warm up problems should be kept in your binder or notes.
- iv. Homework will be handed back within 5 school days of it being turned in.

V. Grading Policy/Assessment

a. *Grading scale*

A	4.0	100-92%
A-	3.67	90-91 %
B+	3.33	88-89 %
B	3.00	82-87 %
B-	2.67	80-81 %
C+	2.33	78-79 %
C	2.00	72-77 %
D+	1.33	68-69 %
D	1.00	62-67 %
D-	0.67	60-61 %
E	0.00	0-59 %

b. *Point Values of Items Graded* –

- i. Each homework assignment will be worth 5 points, and tests will be worth 100 points. Notebook checks every semester will be worth 20 points and extra credit can be gained for showing you were taking notes during class.
- ii. Binders will be graded on organization and neatness. HW assignments must be attached in the 3 rings. Tests and other handouts may be put in a side pocket. How you organize the binder outside of that is up to you, but should make logical sense (Some people like hw in one section, and then tests in another, where some people like to do everything in chronological order with notes, hw, and tests.)
- iii. Any projects given throughout the year will be given a point value depending on the size of the project.

c. *Retesting*

- i. Tests will be graded within one week of the testing date.
- ii. If a student earns below a 65% they will be allowed to re-take the test, however this must be done within 1 week from the date that the test is handed back.

VI. Course Procedures

- a. *Course format/pacing* – The following format will generally be taken for each unit:
 - i. Class discussions of new material and class work time.
 - ii. Review prior to test
 - iii. Practice Test
 - iv. Test
- b. *Work requirements* – To be successful in my class students will need to:
 - i. Be engaged and attentive during class discussions.
 - ii. Complete and turn in all homework assignments.
 - iii. Study for all quizzes and tests.
- c. *Group work*
 - i. During in class work time, students are allowed to work with other students if they prefer, or by themselves. However, students should keep in mind that they as individuals need to be proficient in the areas and will have to take all tests and quizzes by themselves.

VII. Personal Statement

- a. Every student in this class has something to contribute.
- b. Never be afraid to ask me a question about any situation you have, my job is to help all of you grow mathematically, and as followers of Christ.

VIII. Course Schedule – Keep in mind all of these dates are subject to change

Tentative Dates	Textbook section and topics
Week 1	1.1 Properties of Real Numbers 1.2 Simplify algebraic expressions 1.3 Linear equations
Week 2	1.4 Formulas 1.5 Problem Solving 1.6 Linear inequalities
Week 3	1.7 Solving Absolute value equations and inequalities Practice tests given for review
Week 4	2.1 Relations versus Functions 2.2 Slopes and rates of change 2.3 Graphing lines 2.4 Write equations of lines
Week 5	2.5 Direct variation models 2.6 Scatter plots and best- fitting lines 2.7 Transformations with absolute value functions
Week 6	<i>Homecoming Week</i> Piecewise functions 2.8 Graphing linear inequalities Practice tests given for review
Week 7	<i>Conferences</i> 3.1 Solve linear systems by graphing 3.2 Solve systems algebraically 3.3 Graphing systems of inequalities
Week 8	3.4 Solving systems with 3 variables 3.5 Matrix operations 3.6 Multiply Matrices
Week 9	3.7 Determinants and Cramer's rule 3.8 Solving linear systems using inverse matrices
Week 10	4.1 Graphing quadratic functions in standard form 4.2 Graphing quadratic functions in vertex and intercept forms 4.3 Solving quadratic by factoring $x^2 + bx + c = 0$
2nd Quarter	
Week 1	4.4 More factoring $ax^2 + bx + c = 0$ 4.5 Solve quadratic equations by using square roots

Week 2	4.6 Perform operations with Complex numbers 4.7 Completing the square 4.8 Using the quadratic formula
Week 3	4.9 Graph and solve quadratic inequalities 4.10 Write quadratic functions and models
Week 4	Kairos Week – no classes for any grade
Week 5	5.1 Properties of Exponents 5.2 Evaluate and graph polynomial functions 5.3 Add, subtract and multiply polynomials. 5.4 Factor and solve polynomial equations
Week 6	Review for Exams
	Exams
Christmas Break	Christmas Break
Week 7	5.5 Apply the remainder and factor theorems 5.6 Find rational zeros
Week 8	5.7 Apply the fundamental theorem of Algebra 5.8 Analyze the graphs of polynomial functions 5.9 Write polynomial functions and models
Week 9	6.1 Evaluate nth roots and use rational exponents
3rd Quarter	
Week 1	6.2 Apply properties of rational exponents 6.3 Perform function operations and composition of functions
Week 2	6.4 Finding the inverse functions 6.5 Graphing square root and cube root functions

Week 3	6.6 Solve radical equations
Week 4	13.1 Trigonometry with right triangle 13.2 Directional angles and radian measure
Week 5	13.3 Evaluate trigonometric functions of any angle 13.4 Inverse trigonometric functions
Week 6	13.5 Law of Sines 13.6 Law of Cosines
Week 7	7.1 Graph exponential growth functions
Week 8	Practice exam given for ACT review
Week 9	7.2 Graph exponential decay functions 7.3 Use functions involving e 7.4 Evaluate logarithms and graph logarithmic functions
Week 10	7.5 Apply properties of logarithms 7.6 Solve exponential and logarithmic equations 7.7 Write and apply exponential and power functions
4th Quarter	
Week 1	8.1 Model inverse and joint variation 8.2 Graph simple rational functions 8.3 Graph general rational functions
Week 2	8.4 Multiply and divide rational expressions 8.5 Add and subtract rational expressions 8.6 Solve rational equations
Week 3	9.1 Apply the distance and midpoint formulas
Week 4	9.2 Graph and write equation of parabolas 9.3 Graph and write equation of circles
Week 5	9.4 Graph and write equation of ellipses 9.5 Graph and write equations of hyperbolas
Week 6	9.6 Translate and classify conic sections 9.7 Solve quadratic systems
Week 7	10.1 Apply the counting principle and permutations 10.2 Use combination and the binomial theorem
Week 8	12.1 Define and use sequence and series, sigma notation

Week 9	Probability
Week 10	Review for Exams
	Exams