Algebra II Honors
Port Allegany High School
Classroom 28
Instructor – Mrs. Francis
Phone – 642-2544 ext 128

TEXTBOOK – *College Algebra*, 8th Ed. by Ron Larson. This may be supplemented in class from various other sources.   Please bring this book to class everyday with a book cover. This course can be taken as a dual enrollment class through the University of Pittsburgh at Bradford as College Algebra 098.

MATH 0098 COLLEGE ALGEBRA II
The topics covered in college algebra II are functions—linear, radical, quadratic, exponential, and logarithmic—and their graphs, rational expressions, linear and compound inequalities, rational exponents, solving systems of linear equations, and solving quadratic equations.

Algebra II TOPICS:

- **Functions**
  Quadratic   Concepts within function sections
  Polynomials   o Review Exponent Properties
  Rational   o Evaluate and Graph
  Radical   o Operations with expressions
  Exponential   o Factoring
  Logarithmic   o Solve equations
  Rational   o Apply Theorem

- **Sequences and Series** → *arithmetic and geometric*
- **Quadratic Relations and Conic Sections** → parabolas, circles, ellipses, huperbolas

IF time Permits, we will discuss some of the following topics:
- **Data Analysis and Statistics** → *combinations and normal distributions*
- **Sequences and Series** → *arithmetic and geometric*
- **Quadratic Relations and Conic Sections** → parabolas, circles, ellipses, huperbolas
- **Trigonometric Ratios** → right triangles

ASSIGNMENTS:
        Mathematics is not a spectator sport. In order to learn new skills and be successful, you must practice. If you want to become proficient in math, you must **DO YOUR WORK** (Practice assignments in or out of class). You should expect daily math assignments. A score of 5 points it possible to earn for every practice assignment. Students' assignments will usually be checked the following day. The following heading must be on the top of all assignments to receive any credit.   Original problem and all necessary work must be shown to receive full credit (single answers will not suffice). Students should correct their work/problems in class as assignments are reviewed. We will also use a variety of post-its for corrections of problems.Accuracy assignments will be given after two or three days of similar lessons. This will be graded for correctness of work and final solution.

Algebra II Period	First and Last Name
Page and problem #'s	Date

NOTEBOOKS/BINDERS:
   Students will KEEP a NOTEBOOK containing classroom notes, examples, and any additional side notes. ORGANIZATION is one of the keys to success in mathematics. Notebooks are for notes not assignments for your benefit. When asking for help outside of class, notebooks must be present with appropriate sections of notes. Students will keep all assignments (book work and worksheets) in a binder along with their class notes. Binders will be checked quarterly at minimum.

GRADES:
   Grades are determined by accumulated points from practice problems, accuracy assignments, binder checks, quizzes, projects, and class participation. The grading scale is consistent with the one found in the student handbook. MAJOR QUIZZES are given after every section is completed and will be announced at least two days in advance but pop quizzes may also be given. All math work will be completed in **PENCIL** to avoid messy, unreadable work. If I need a road map to follow you work, the problem will be considered wrong. A mid-term will be given at the end of the first semester on the topics from the first two quarters. A final will be given at the end of the second semester on the topics from the last two quarters.

The final quarter grade will consist of the following possible scores:

   200-240 Points   Announced/Pop Quizzes **40% - 42%**
   200-275 Points   Practice(25-35) & Accuracy Assignments(2-5) **40% - 44%**
   60-80 Points   Final (Quarter 4 Only) **12% - 15%**
   80-100 Points   Projects/Miscellaneous **20% - 25%**
   Approximately 480-615 Points per Quarter

PERCENTAGE OF POINTS EARNED		GRADE
100	95	A
94	92	A-
91	89	B+
88	86	B
85	83	B-
82	80	C+
79	77	C
76	74	C-
73	71	D+
70	68	D
66	65	D-
64	0	F

Topics and Concepts: Following is a list of topics to be covered during the year.

Section	Topic	Time
P.1	**Review of Real Numbers** ➢ Classify and order real numbers. ➢ Find absolute value of real numbers and distance between numbers. ➢ Evaluate algebraic expressions	25 days
P.2	**Exponents and Radicals** ➢ Use properties of exponents and radicals. ➢ Simplify and combine radicals. ➢ Use properties of rational exponents.	
P.3	**Polynomials and Special Products** ➢ Perform operations on with polynomials. ➢ Use polynomials to solve real-life problems.	
P.4	**Factoring Polynomials** ➢ Common factors, special forms, trinomials, and factoring by grouping.	
P.5	**Rational Expressions** ➢ Find domains of algebraic expressions. ➢ Simplify rational expressions. ➢ Perform operations with rational expressions. ➢ Simplify complex fractions.	
P.6	**Rectangular Coordinate System**	

		➤ Plot points, find distance and midpoints between points. ➤ Use coordinate plane to solve real-life problems.	
1.1	**Graphs of Equations** ➤ Students will determine symmetry in functions and will write equations of circles.	30 days	
1.2	**Linear Equations in One Variable** ➤ Students will determine solve equations and determine intercepts.		
1.4	**Quadratic Equations and Applications** ➤ Solve quadratic equations by factoring, extracting square roots, completing the square, and the quadratic formula.		
1.6	**Other Types of Equations** ➤ Solve equations involving radicals, fractions, or absolute values.		

1.7	**Liner Inequalities in One Variable**
	  ➤ Solve linear, absolute value, and compound inequalities.
	  ➤ Use inequalities to model real-life situations.		

1.8	**Other Types of Inequalities** ➤ Solve quadratic and rational inequalities.		

2.1	**Linear Equations in 2 Variables**
	  ➤ Find slope given 2 points.
	  ➤ Graph and write linear equations.
	  ➤ Use slope to identify parallel and perpendicular lines.
		28 days	

2.2	**Introduction to Functions**
	  ➤ Determine whether relations are functions.
	  ➤ Use function notation.
	  ➤ Find domain and range of functions.		

2.3	**Analyze Graphs of Functions**
	  ➤ Determine increasing, decreasing, max, min points, and zeroes of functions.
	  ➤ Determine if functions are even or odd.		

2.6	**Combining Functions**
	  ➤ Perform operations on functions.
	  ➤ Find compositions of functions		

2.7	**Inverse Functions** ➤ Find and graph inverse functions.		

	➤ Use horizontal line test to determine one-to-one functions.	
3.1	**Quadratic Functions and Models** ➤ Analyze graphs of quadratics. ➤ Write quadratic functions in standard form and sketch their graphs. ➤ Find max and min values of quadratics and use them in real-life situations.	4 days
5.1	**Exponential Functions and Their Graphs** ➤ Recognize and evaluate exponential functions in base a and e. ➤ Graph exponential functions in base a and e. ➤ Use exponential functions to solve real-life problems.	30 days
5.2	**Logarithmic Functions and Their Graphs** ➤ Recognize and evaluate logarithmic functions in base a and e. ➤ Graph logarithmic functions in base a and e. ➤ Use logarithmic functions to solve real-life problems.	
5.3	**Properties of Logarithms** ➤ Use properties to rewrite/evaluate logarithms. ➤ Use properties to expand/condense expressions.	
5.4	**Exponential and Logarithmic Equations** ➤ Solve exponential and logarithmic equations. ➤ Use exponential and logarithmic equations to solve real-life problems.	
5.5	**Exponential and Logarithmic Models** ➤ Use exponential and logarithmic models to solve real-life problems.	
6.1	**Linear and Nonlinear Systems of Equations** ➤ Solve systems of equations by graphing and substitution.	25 days
6.2	**Two-Variable Linear Systems** ➤ Solve linear systems by elimination. ➤ Use systems of linear equations to solve real-life problems.	

| 6.5 | **Systems of Inequalities**
➢ Solve systems of inequalities by graphing.
➢ Use systems of inequalities to solve real-life problems. | |

ABSENTEEISM:

        If you have been ABSENT, if possible please find out before coming to class what notes, assignments, quizzes, etc. you have missed. If you are absent only the day of a test or quiz, you will take it the next day that you are available to make up the test during your study hall or before/after school. The make-up tests will not be given during class time, since you will get behind on that day's lesson. If make-up tests are not completed within 5 days after the day of test, **the score will be a zero**. If you know you are going to be absent from class due to appointments, athletics, meetings, or other school related functions, please see me ahead of time. YOU **ARE RESPONSIBLE** for coming to me to ask for the work that you have missed and to turn in assignments on time. There is a weekly assignment board located in the classroom.

        Students are expected to be in your seat and ready to begin class when the bell rings. Do not congregate in the doorway or anywhere else. Books should be open to the proper pages, and practice assignment should be on desks ready to review. Be prepared to ask questions, complete problems on the board, and participate in class activities. Remember you PANTS for class every day:

        Pencil **A**ssignment **N**otebook **T**extbook **S**cientific (Graphing) Calculator

EXTRA HELP:

        If you need extra help or tutoring **DO NOT WAIT**, ask for help early and often. You may seek extra help from me before or after school, or 5th period (12:06 – 12:48 pm). I would also encourage you to ask other math teachers or classmates for assistance.   Also, math tutoring is available in the library during morning homeroom (8:00 – 8:30 am).

Thank you for your cooperation and effort throughout the upcoming year. You begin with an "A," your job is to work towards keeping that grade by paying attention in class, completing the given assignments, and reviewing/practicing problems daily. If you put forth the effort, you can and WILL succeed in the course!!

        Sincerely,

        Mrs. Francis