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Text: *Algebra I*, Prentice Hall Mathematics High School Math Series by Bellman, Bragg, Charles, Hall Handlin & Kennedy, 2007

Calculator: The TI-84 graphing calculator will be used as the primary computing device for this course. Students should become adept at using their graphing calculators not only to evaluate algebraic expressions, but also to investigate the behavior of functions and their graphs and to carry out elementary statistical procedures. Nevertheless, students also have to learn the basic paper-and-pencil rules and techniques of algebra. It is expected that students will be equally competent in both methods.

Academic Expectations and Homework

- Mastery comes from practice, i.e., doing homework problems daily. Concepts and skills are honed through study and completing homework assignments on time. Before attempting HW problems from the new section, read the section for understanding and review your notes from class. Expect to spend an hour a day on your homework.

- Every problem assigned should be done. Do not give up on a difficult problem. Read the textbook for help or discuss with a classmate or seek help from a parent or ask for assistance by emailing me. Students are expected to seek additional assistance from me at the earliest sign of misunderstanding or inability to complete an assignment. Often, a short online session with me helps. A student has a few options to ask for help from Help Sessions. I will conduct my own Help Session each Sunday from 3 to 5 pm.

- On the first page of your homework, write your name on the top right-hand corner and the Week Number on the top left-hand corner. Begin each new section by labeling it with the page number. Start each problem by writing the problem number on the *left* of the margin. Leave a line space before doing the next problem. Show steps/methods on separate lines. If an answer comes from your calculator, state clearly the procedure you used and/or draw a sketch of your graphing screen. A sketch does not need to be drawn on graph paper, but actual graphs are to be drawn on graph paper (4 squares per inch) and cut and pasted onto your homework. Use a ruler for straight lines.

- Homework must be turned in on the next week of class. DO NOT PROCRASTINATE. Please be reminded that being absent for ATYP is the equivalent of missing an entire week of homeschool. If you are going to be absent, please have a classmate or parent hand in your homework. Alternatively, your homework can be submitted online.

- To receive credit for each problem done, some degree of work needed to be shown. The student needs to communicate how an answer is obtained using algebraic properties. The goal in this process is for each student to exhibit a deep understanding and mastery of algebraic concepts.

- To become fluent and competent in mathematics, students must be aware of their shortcomings and their wrong interpretations of concepts. Doing corrections is a very important habit in the growth of an algebra student. Asking for assistance is an important trait too. When doing corrections, please state the section and problem number. You may turn in corrections the week after and earn points missed.

Class Meeting

The procedure varies but will definitely cover:
- Discussions on new topics.
- 15-minute Break
- Going over homework problems that students find difficult. If a student has difficulty with more than three questions, he/she should email or call me during the week so we can get the questions resolved before class starts. Another option is to seek help during the Sunday Help Session.

If time permits,
- Corrections on graded homework.
- Quiz

Grading Scale

A: 90 – 100%
AB: 80 – 89%
B: 70 – 79%
C: 60 – 69%
NC: below 60%

Homework grades falling below 65% three times indicates that the program might not be suited to the student. A conference between the parent(s) and the teacher will be arranged.

Exams

- The first two exams are written by the instructor.
- The Final Exam is the Michigan Standardized Exam covering all Algebra I content.
- Each Exam grade is weighted equally with the average of the previous six homework assignment grades.

<u>Course Outline</u> (Subject to change, as needed):

Variables and Algebraic Expressions

Real Numbers and their Properties: Natural Numbers, Whole Numbers, Integers, Rational and Irrational Numbers.

Solving of: Equations and Inequalities
                Systems of Equations and Inequalities

Families of Functions:

      Linear

      Absolute Value

      Exponential

      Polynomial

      Quadratic

      Square Root

      Rational

      We will approach each family by representing functions in four ways:
      - Words
      - Tables
      - Algebraic Expressions
      - Graphs

      The concept of transformation is a recurring theme. We will cover properties and techniques of solving each type of functions.

Number Patterns and Sequences: Arithmetic and Geometric

Variations and Functions: Direct and Inverse

Statistics:
      Central Tendency: Mean, Median, Mode and Range
      Scatter Plots and Linear Regression
      Probability
      Permutations and Combinations