

Spectrum Program

Course Title

Individually Paced (IP) Algebra I Honors

Course Description

IP Algebra I Honors is an individually paced, honors-level high school mathematics course that covers the first year of high school algebra. During the three-week course, students work independently and at their own pace. Students receive support and individual attention from the teacher and teaching assistant. Mastery must be demonstrated to move to subsequent chapters. Individually paced math courses are not intended to remediate deficiencies. A graphing calculator is required.

Proficiency and thorough understanding of concepts must be demonstrated on chapter tests before studying subsequent chapters. Students diagnosed as having incomplete proficiency in specific areas will receive individualized instruction until proficiency is demonstrated.

Successful completion of this course will prepare students for Geometry and/or Algebra II high school courses. Students and parents are encouraged to check with their own schools as to their acceptance of completed CTD coursework as credit for acceleration.

Outcomes

Upon successful completion of this course, students will:

- a. have developed an understanding of the concepts of algebraic expressions, equations and functions
- b. be able to apply the concepts of algebraic expressions, equations, and functions
- c. demonstrate a thorough understanding of the properties of real numbers
- d. be able to solve linear equations, graph linear equations and functions, and write linear equations of different forms
- e. demonstrate proficiency with solving and graphing linear inequalities
- f. be able to solve systems of equations and inequalities
- g. understand and apply the concepts of exponents and exponential functions
- h. be able to compute with, solve, and factor polynomials
- i. be able to graph and solve quadratic equations and functions
- j. be able to graph square root functions, simplify radical expressions and solve radical equations
- k. be able to apply their knowledge of radical equations to geometric situations
- l. be able to model inverse variation, graph rational functions and divide polynomials
- m. be able to simplify and compute rational expressions
- n. be able to solve rational equations
- o. have demonstrated the ability to apply concepts to problem solving situations
- p. utilize the graphing calculator properly

Resources and Materials

Larson, Ron, Laurie Boswell, Timothy D. Kanold, and Lee Stiff. Algebra 1. Evanston: McDougal Littell, 2007. ISBN #: 0618594027

The students need to bring the following materials to class daily:

- * A spiral bound multi-subject notebook or a three-ring binder
- * A folder for graded assignments
- * Pencils
- * A graphing calculator preferably from the following list of Texas Instrument Calculators: TI 83+, TI 83+ Silver Edition, TI 84+, or TI 84+ Silver Edition

Student Evaluation and Grading Policies

a. CTD Grading Scale

A+	100-97%	A	96-93%	A-	92-90%
B+	89-87%	B	86-83%	B-	82-80%
C+	79-77%	C	76-73%	C-	72-70%
D+	69-67%	D	66-63%	D-	62-60%
F	below 60%				

b. Breakdown of final grade

Completed assignments (25%)
Test scores (75%).

Schedule

Since IP Algebra I is a self-paced advanced course, the topics covered each day along with the allotted time periods for each topic will vary among students. The role of the teacher and TA will be to assist students as needed to ensure successful completion of curriculum, assignments, and growth in their understanding of Algebra I. Throughout the course, the students will experience both individual and group activities and assignments. The following schedule is a guide for students to use to pace themselves.

Week 1

Dates	Topic(s)	In-class Activities	Graded Assignments and/or Assessment
Monday 7.20.09	*Pre-test *Chapter 1 <i>Expressions, Equations, and Functions</i>	-evaluate and write algebraic expressions -write equations and inequalities -represent functions as rules, tables and graphs -utilizing a problem solving plan	Course Pre-Test Chapter 1 Assignment

Tuesday 7.21.09	*Chapter 2 <i>Properties of Real Numbers</i>	-using integers and rational numbers -compute with rational numbers -apply the distributive property -square roots and comparison of real numbers	Test Chapter 1 Chapter 2 Assignment
Wednesday 7.22.09	*Chapter 3 <i>Solve Linear Equations</i>	-solve single and multi-step equations -solve equations with variables on both sides -write ratios and proportions -solve proportions and percent problems -rewrite equations and formulas	Test Chapter 2 Chapter 3 Assignment
Thursday 7.23.09	*Chapter 4 <i>Graphing Linear Equations and Functions</i>	-plot points in the coordinate plane -graph linear equations (manually and on the graphing calculator) -find slope and rate of change -graph linear equations using intercepts and slope-intercept form -model direct variation -graph linear functions	Chapter 4 test Chapter 4 assignment
Friday 7.24.09	*Chapter 5 <i>Writing Linear Equations</i>	-write linear equations in slope-intercept form, point-slope form and standard form -use linear equations in slope-intercept form -write equations of parallel and perpendicular lines	Test Chapter 4 Chapter 5 assignment

****WEEKLY GOAL**** To have completed 5 chapters by the end of the first week

Week 2

Dates	Topic(s)	In-Class Activities	Graded Assignments and/or Assessment
Monday 7.27.09	* Chapter 6 <i>Solving and graphing linear equations</i>	-solve inequalities -solve compound inequalities -solve absolute value equations and inequalities -graph linear equations in two	Test Chapter 5 Chapter 6 assignment

		variables (manually and with graphing calculator)	
Tuesday 7.28.09	*Chapter 7 <i>Systems of Equations and Inequalities</i>	-solve linear systems by graphing, by substitution, and by linear combinations -solve special types of linear systems -solve systems of linear inequalities (manually and on the graphing calculator)	Test Chapter 6 Chapter 7 assignment
Wednesday 7.29.09	*Chapter 8 <i>Exponents and Exponential Functions</i>	-apply exponential properties -define and apply zero and negative exponents -apply scientific notation -write and graph exponential decay functions	Test Chapter 7 Chapter 8 assignment
Thursday 7.30.09	*Chapter 9 <i>Polynomials and Factoring</i>	-add, subtract, and multiply polynomials -special products of polynomials -solve polynomial equations in factored form -factor polynomials -factor special products	Test Chapter 8 Chapter 9 assignment
Friday 7.31.09	*Chapter 10 <i>Quadratic Equations and Functions</i>	-graph quadratic equations and functions (manually and with a graphing calculator) -solve quadratic equations by graphing, using square roots, completing the square and using the quadratic formula -interpret the discriminant -compare linear, exponential, and quadratic models	Test Chapter 9 Chapter 10 assignment

****WEEKLY GOAL**** To have completed 10 chapters by the end of the second week

Week 3

Dates	Topic(s)	In-Class Activities	Graded Assignments and/or Assessment
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Monday 8.3.09	*Chapter 11 <i>Radicals and Geometry Connections</i>	-graph square root functions manually and with the graphing calculator -simplify radical expressions -solve radical equations -apply the Pythagorean Theorem and its converse -apply the distance and midpoint formulas	Test Chapter 10 Chapter 11 Assignment
Tuesday 8.4.09	* Chapter 12 <i>Rational Equations and Functions</i>	-model inverse variation -graph rational functions manually and with a graphing calculator -divide polynomials -simplify rational expressions -multiply and divide rational expressions -solve rational equations	Test Chapter 11 Chapter 12 Assignment
Wednesday 8.5.09	Complete Chapter 12	-review for final exam	Test Chapter 12 Course Review Assignment
Thursday 8.6.09	Course Review	-Review for final exam	Final Exam
Friday 8.7.09	End of Course	-Complete Final Exam	

****WEEKLY GOAL**** To have completed all 12 chapters no later than Thursday of the final week