TRUMBULL PUBLIC SCHOOLS

Trumbull, Connecticut

MATH WORKSHOP I
Grade 9
Mathematics Department

2018

Curriculum Writing Team

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Grade 9
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The Trumbull Board of Education will continue to take Affirmative Action to ensure that no persons are discriminated against in its employment.

CORE VALUES AND BELIEFS

The Trumbull High School community engages in an environment conducive to learning which believes that all students will **read and write effectively**, therefore communicating in an articulate and coherent manner. All students will participate in activities **that present problem-solving through critical thinking**. Students will use technology as a tool applying it to decision making. We believe that by fostering self-confidence, self-directed and student-centered activities, we will promote **independent thinkers and learners**. We believe **ethical conduct** to be paramount in sustaining the welcoming school climate that we presently enjoy.

Approved 8/26/2011

INTRODUCTION & PHILOSOPHY

Math Workshop I is designed for students who have an academic need identified through a variety of testing data. Students focus on organizational and algebraic support systems for CP Algebra I, in which they are enrolled concurrently.

This course supports students by identifying and filling in gaps in prerequisite knowledge necessary for students in CP Algebra I and beyond. It also helps to reinforce the topics of the CP Algebra I curriculum and reflect back upon topics previously learned throughout the year.

Students will be supported in their organizational skills as they relate to CP Algebra I, including, but not limited to, note-taking, study techniques, homework completion, and test preparedness.

COURSE GOALS

Supporting CP Algebra I, Math Workshop I takes a balanced instructional approach to promote the understanding of important mathematical concepts, skills, procedures, and ways of thinking and reasoning.

The following course goals derive from the 2010 Connecticut Core Standards for Mathematical Content.

N-RN The Real Number System

Extend the properties of exponents to radical exponents. Use properties of rational and irrational numbers.

N-Q Quantities

Reason quantitatively and use units to solve problems.

A-SSE Seeing Structure in Expressions

Interpret the structure of expressions. Write expressions in equivalent forms to solve problems.

A-APR Arithmetic with Polynomials and Rational Expressions

Perform arithmetic operations on polynomials. Understand the relationship between zeros and factors of polynomials.

A-CED Creating Equations

Create equations that describe numbers or relationships.

A-REI Reasoning with Equations and Inequalities

Understand solving equations as a process of reasoning and explain the reasoning. Solve equations and inequalities in one variable. Solve systems of equations. Represent and solve equations and inequalities graphically.

F-IF Interpreting Functions

Understand the concept of a function and use function notation. Interpret functions that arise in applications in terms of the context. Analyze functions using different representations.

F-BF Building Functions

Build a function that models a relationship between two quantities. Build new functions from existing functions.

F-LE Linear, Quadratic, and Exponential Models

Construct and compare linear, quadratic, and exponential models and solve problems. Interpret expressions for functions in terms of the situation they model.

S-ID Interpreting Categorical and Quantitative Data

Summarize, represent, and interpret data on a single count or measurement variable. Summarize, represent, and interpret data on two categorical and quantitative variables. Interpret linear models.

S-IC Making Inferences and Justifying Conclusions

Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

S-CP Conditional Probability and the Rules of Probability

Understand independence and conditional probability and use them to interpret data.

The following course goals derive from the 2010 Connecticut Core Standards for Mathematical Practices, which describe varieties of expertise that all teachers of mathematics will develop in their students. These practices rest on important "processes and proficiencies" that have long been valued in mathematics education.

1. Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems,

and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary.

2. Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved.

Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

3. Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is.

4. Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace.

Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

5. Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and the tools' limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions

with data. They are able to use technological tools to explore and deepen their understanding of concepts.

6. Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, expressing numerical answers with a degree of precision appropriate for the problem context. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

7. Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects.

8. Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

The following standards derive from the 2016 International Society for Technology in Education Standards.

ISTE Digital Citizen (Standard 2)	Students recognize the rights, responsibilities, and opportunities of living, learning, and working in an interconnected digital world, and they act and model in ways that are safe, legal, and ethical. 2a. Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world. 2b. Students engage in positive, safe, legal, and ethical behavior when using technology, including social interactions online or when using networked devices. 2c. Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property. 2d. Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.
ISTE Knowledge Constructor (Standard 3)	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts, and make meaningful learning experiences for themselves and others. 3a. Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. 3b. Students evaluate the accuracy, perspective, credibility, and relevance of information, media, data, or other resources.

3c. Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
3d. Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

COURSE ENDURING UNDERSTANDINGS

Students will understand that . . .

- strong organizational and study skills enhance learning mathematics.
- arithmetic and geometric sequences give rise to linear and exponential equations.
- linear, exponential, and quadratic equations can be used to model real-life situations, develop inferences, and make informed decisions.
- technology can help them analyze, organize, and display data to support their conclusions.

COURSE ESSENTIAL QUESTIONS

- How can I use strong organizational and study skills, and reflections on previous learning, to enhance learning mathematics?
- How can arithmetic and geometric sequences be represented by equations?
- How can we take real-life data and model it mathematically?
- How can linear, exponential, and quadratic equations help us make informed decisions about the world around us?
- How can we use graphing calculators to translate real-life data into mathematical models?

COURSE KNOWLEDGE & SKILLS

Students will understand . . .

- the key vocabulary of algebraic mathematics:
  - arithmetic sequence, explicit rule, geometric sequence, integer, N^{th} term, recursive rule (Unit 1);
  - algebraic expression, coefficient, constant, distributive property, linear inequalities, real numbers, variable (Unit 2);
  - dependent variable, domain, function, function notation, independent variable, linear function, mapping diagram, non-linear function, parabola, range, relation, vertical line test (Unit 3);
  - causation, correlation, correlation coefficient, extrapolation, initial value, interpolation, line of best fit, linear model, parameter, point-slope form, rate of change, scale, scatterplot, slope, slope-intercept form, standard form, regression expression, regression line, trend line, unit rate, velocity, *x*-intercept, *y*-intercept (Unit 4);
  - break-even point, elimination method for solving systems of equations, fixed cost, graphing method for solving systems of equations, profit, revenue, solution of a

system of linear equations, substitution method for solving systems, system of linear equations, system of linear inequalities (Unit 5);
    - compound interest, decay factor, doubling time, exponential decay, exponential function, exponential growth, growth factor, half life, laws of exponents, radical expressions, rate of change (Unit 6);
    - ascending order, axis of symmetry, binomial, degree, descending order, difference of two squares, discriminant, expanded form, factored form, factoring by grouping, leading coefficient, maximum, minimum, monomial, perfect square trinomial, quadratic, quadratic formula, quadratic function, quadratic equation, root, standard form of a quadratic equation, trinomial, vertex, zero product property (Unit 7); and
    - box-and-whisker plot, interquartile range (IQR), mean, measures of central tendency, median, mode, outlier, quartile, range (Unit 8).

Students will be able to . . .

- write linear and exponential equations from arithmetic and geometric sequences.
- solve multi-step equations and linear inequalities without a calculator.
- rewrite linear equations for a given variable.
- use graphing and statistical functions of a graphing calculator.
- represent functions using tables, equations, and graphs.
- use function notation.
- find, analyze, and describe the meaning of slope.
- write linear equations.
- find the line of best fit, analyze trend lines, and make scatterplots.
- solve systems of equations by graphing, substitution, and elimination.
- solve systems of inequalities by graphing.
- learn the rules of exponents and use them to simplify expressions.
- identify the parameters of exponential functions and how they affect the graph of a function.
- apply exponential functions to real-world situations.
- add, subtract, and simplify radicals.
- rationalize the denominator of radicals.
- add, subtract, and multiply polynomials.
- factor polynomials.
- solve quadratic equations.
- graph a parabola using the intercepts and vertex.
- describe a data set using measures of central tendency.
- organize data in displays such as frequency tables, histograms, and box-and-whisker plots.
- identify outliers and explain how they affect the spread of data.

COURSE SYLLABUS

Course Name

Math Workshop I

Level

College-Preparatory

Prerequisites

Concurrent enrollment in CP Algebra I

Materials Required

TI-84 graphing calculator

General Description of the Course

Math Workshop is designed to strengthen students' algebraic skills in preparation for success in Algebra I and future mathematics courses at Trumbull High School. Students will also strengthen and develop problem-solving strategies and organizational and study skills to enhance their mathematics practices.

Assured Assessments

Formative Assessments:

Formative assessments can include, but are not limited to:

- Diagnostic assessments
- Notebook checks
- Daily warm-ups
- Exit slips
- Classwork assignments

Summative Assessments:

- Practice tests
- Midterm review assessments
- Final review assessments

Core Text

- Charles, Randall I., et al. *Algebra 1*. New York: Pearson, 2015. Print.

UNIT 1
Introduction, Organization, CP Algebra I Unit 1 Support and Reinforcement

Unit Goals
At the completion of this unit, students will:

- Complete a diagnostic assessment of foundational skills
- Learn organizational skills as they apply to the CP Algebra I course
- Learn skills to help support the CP Algebra I Unit 1: Patterns and Sequences

Unit Essential Questions

- How do I use the notes I've taken in class to prepare for an assessment?
- What is a sequence?
- How can patterns be represented?

Scope and Sequence

- Students will organize their notes and homework so they can better utilize them to prepare for assessments.
- Students will create and analyze different representations of patterns.
- Students will write the recursive and explicit rules for arithmetic sequences and geometric sequences.

Assured Assessments
Formative Assessment:
Students will complete a diagnostic assessment to measure overall understanding of prerequisite skills. Students will then participate in tasks including, but not limited to, notebook checks, daily warm-ups, exit slips, and/or other formative classwork assessments related to the CP Algebra I curriculum. Skills checks (e.g., diagnostic assessment, notebook checks, exit slips) will count as 30% of the marking period grade; skills practice (e.g., daily warm-ups, other classwork assignments) will count as 50% of the marking period grade.
Summative Assessment:
A summative practice test will be given in preparation for the Unit 1 end-of-unit assessment in CP Algebra I. This will count as 20% of the marking period grade.

Resources
<u>Core</u>

- CSDE CTHSS Moodle for Algebra I

<u>Supplemental</u>

- Charles, Randall I., et al. *Algebra 1*. New York: Pearson, 2015. Print.
    - Sections 1-9, 4-7, & 4-8

Time Allotment

- Approximately 10 days, with later reinforcement as needed

UNIT 2
Organization and Study Skills, CP Algebra I Unit 2 Support and Reinforcement

Unit Goals
At the completion of this unit, students will:

- Further develop organizational skills as they apply to the CP Algebra I course
- Learn skills to help support the CP Algebra I Unit 2: Linear Equations and Inequalities

Unit Essential Questions

- How can I build on my success from Unit 1 to better prepare for assessments?
- How can I use linear equations, inequalities, percents, ratios, and proportions to solve real-world problems?

Scope and Sequence

- Students will organize their notes and homework so they can better utilize them to prepare for assessments.
- Students will write, simplify, evaluate, and model situations involving linear equations, inequalities, percents, ratios, and proportions.

Assured Assessments
Formative Assessment:
Students will participate in tasks including, but not limited to, a unit diagnostic assessment, notebook checks, daily warm-ups, exit slips, and/or other formative classwork assessments related to the CP Algebra I curriculum. Skills checks (e.g., diagnostic assessment, notebook checks, exit slips) will count as 30% of the marking period grade; skills practice (e.g., daily warm-ups, other classwork assignments) will count as 50% of the marking period grade.
Summative Assessment:
A summative practice test will be given in preparation for the Unit 2 end-of-unit assessment in CP Algebra I. This will count as 20% of the marking period grade.

Resources
Core

- Charles, Randall I., et al. *Algebra 1*. New York: Pearson, 2015. Print.
    - Sections 2-1, 2-2, 2-3, 2-4, 2-6, 2-7, 2-9, 2-10, 3-1, 3-2, 3-3, & 3-4

Supplemental

- CSDE CTHSS Moodle for Algebra I

Time Allotment

- Approximately 15 days, with later reinforcement as needed

UNIT 3
Organization and Study Skills, CP Algebra I Unit 3 Support and Reinforcement

Unit Goals
At the completion of this unit, students will:

- Further develop organizational skills and test-taking strategies as they apply to the CP Algebra I course
- Learn skills to help support the CP Algebra I Unit 3: Functions

Unit Essential Questions

- How can I build on my success from the previous units to better prepare for assessments?
- What is a function?
- What are the different ways in which functions may be represented?
- How can functions be used to model real-world situations, make predictions, and solve problems?

Scope and Sequence

- Students will continue to organize their notes and homework so they can better utilize them to prepare for assessments.
- Students will be introduced to the concept of a function, identify relations and functions, and define the domain and range of a function.
- Students will organize and analyze data in tables and graphs and use the information to describe relationships.
- Students will be introduced to function notation and will evaluate functions.

Assured Assessments
Formative Assessment:
Students will participate in tasks including, but not limited to, a unit diagnostic assessment, notebook checks, daily warm-ups, exit slips, and/or other formative classwork assessments related to the CP Algebra I curriculum. Skills checks (e.g., diagnostic assessment, notebook checks, exit slips) will count as 30% of the marking period grade; skills practice (e.g., daily warm-ups, other classwork assignments) will count as 50% of the marking period grade.
Summative Assessment:
A summative practice test will be given in preparation for the Unit 3 end-of-unit assessment in CP Algebra I. This will count as 20% of the marking period grade.

Resources
<u>Core</u>

- Charles, Randall I., et al. *Algebra 1*. New York: Pearson, 2015. Print.
    - Sections 4-1, 4-2, 4-4, & 4-5

<u>Supplemental</u>

- CSDE CTHSS Moodle for Algebra I

Time Allotment

- Approximately 15 days, with later reinforcement as needed

UNIT 4
Independent Study Skills, CP Algebra I Unit 4 Support and Reinforcement

Unit Goals
At the completion of this unit, students will:

- Independently apply the previously learned skills and strategies to the CP Algebra I course
- Learn skills to help support the CP Algebra I Unit 4: Linear Functions

Unit Essential Questions

- How can I build on my success from the previous units to independently prepare for assessments including the CP Algebra I midterm examination?
- What are the different ways in which linear functions may be represented?
- How can linear functions model real-world situations and help me analyze and solve practical problems?
- How can I use technology to support the mathematics necessary to analyze a linear function?

Scope and Sequence

- Students will independently organize their notes and homework so they can better utilize them to prepare for assessments.
- Students will derive linear models of real-world situations in order to analyze situations, make predictions, and/or solve problems.
- Students will graph a trend line by hand and by using technology.
- Following a midterm review, students will independently prepare for the CP Algebra I midterm examination using previously completed notes and study guides.

Assured Assessments
Formative Assessment:
Students will participate in tasks including, but not limited to, a unit diagnostic assessment, notebook checks, daily warm-ups, exit slips, and/or other formative classwork assessments related to the CP Algebra I curriculum. Skills checks (e.g., diagnostic assessment, notebook checks, exit slips) will count as 30% of the marking period grade; skills practice (e.g., daily warm-ups, other classwork assignments) will count as 50% of the marking period grade.
Summative Assessment:
A summative practice test will be given in preparation for the Unit 4 end-of-unit assessment in CP Algebra I. This, along with midterm review assessments, will count as 20% of the marking period grade.

Resources
Core

- Charles, Randall I., et al. *Algebra 1*. New York: Pearson, 2015. Print.
    - Sections 5-1, 5-3, 5-4, 5-5, 5-6, & 5-7

Supplemental

- CSDE CTHSS Moodle for Algebra I

Time Allotment

- Approximately 22 days, with later reinforcement as needed

UNIT 5
Semester 1 Review, CP Algebra I Unit 5 Support and Reinforcement

Unit Goals
At the completion of this unit, students will:

- Reinforce identified areas of weakness from previous CP Algebra I units
- Learn skills to help support the CP Algebra I Unit 5: Systems of Linear Equations

Unit Essential Questions

- How can I make connections to material previously learned in CP Algebra I?
- How can I determine the number of solutions of a system of linear equations?
- How can I solve a system of linear equations using a variety of methods?
- How do I determine which method is best to use when solving a system of linear equations?

Scope and Sequence

- Students will represent, compare, and analyze two linear equations and look for common solutions, building on knowledge of linear functions from Units 3 & 4.
- Students will solve systems of equations numerically, graphically, and algebraically.
- Students will explain what the solution of a system of linear equations represents in context.
- Students will look for indicators within a system of equations to decide which method is best used to solve.

Assured Assessments
Formative Assessment:
Students will participate in tasks including, but not limited to, a unit diagnostic assessment, notebook checks, daily warm-ups, exit slips, and/or other formative classwork assessments related to the CP Algebra I curriculum. Skills checks (e.g., diagnostic assessment, notebook checks, exit slips) will count as 30% of the marking period grade; skills practice (e.g., daily warm-ups, other classwork assignments) will count as 50% of the marking period grade.
Summative Assessment:
A summative practice test will be given in preparation for the Unit 5 end-of-unit assessment in CP Algebra I. This will count as 20% of the marking period grade.

Resources
Core

- Charles, Randall I., et al. *Algebra 1*. New York: Pearson, 2015. Print.
    - Sections 6-1, 6-2, 6-3, & 6-4

Supplemental

- CSDE CTHSS Moodle for Algebra I

Time Allotment

- Approximately 15 days, with later reinforcement as needed

UNIT 6
Semester 1 Review, CP Algebra I Unit 6 Support and Reinforcement

Unit Goals
At the completion of this unit, students will:

- Reinforce identified areas of weakness from previous CP Algebra I units
- Learn skills to help support the CP Algebra I Unit 6: Introduction to Exponential Functions

Unit Essential Questions

- How can I make connections to material previously learned in CP Algebra I?
- What characterizes exponential growth and decay?
- What are real-world models of exponential growth and decay?
- How can I use the Pythagorean Theorem to solve real-world problems?
- How can I simplify a radical expression?

Scope and Sequence

- Building on concepts of a function and patterns of change, students will revisit geometric sequences explored in Unit 1.
- Students will derive exponential models of real-world situations in order to analyze situations, make predictions, and/or solve problems.
- Students will investigate properties of exponents.
- Students will simplify radical expressions, including those with variables.

Assured Assessments
Formative Assessment:
Students will participate in tasks including, but not limited to, a unit diagnostic assessment, notebook checks, daily warm-ups, exit slips, and/or other formative classwork assessments related to the CP Algebra I curriculum. Skills checks (e.g., diagnostic assessment, notebook checks, exit slips) will count as 30% of the marking period grade; skills practice (e.g., daily warm-ups, other classwork assignments) will count as 50% of the marking period grade.
Summative Assessment:
A summative practice test will be given in preparation for the Unit 6 end-of-unit assessment in CP Algebra I. This will count as 20% of the marking period grade.

Resources
<u>Core</u>

- Charles, Randall I., et al. *Algebra 1*. New York: Pearson, 2015. Print.
    - Sections 7-1, 7-2, 7-3, 7-4, 7-6, 7-7, 10-1, & 10-2

<u>Supplemental</u>

- CSDE CTHSS Moodle for Algebra I

Time Allotment

- Approximately 27 days, with later reinforcement as needed

UNIT 7
Semester 1 Review, CP Algebra I Unit 7 Support and Reinforcement

Unit Goals
At the completion of this unit, students will:

- Reinforce identified areas of weakness from previous CP Algebra I units
- Learn skills to help support the CP Algebra I Unit 7: Quadratic Functions and Equations

Unit Essential Questions

- How can I make connections to material previously learned in CP Algebra I?
- How do I add, subtract, and multiply polynomials?
- How is the factoring of polynomials related to the multiplication of polynomials?
- How do I determine if I should factor a greatest common factor (GCF) before factoring into binomials?
- How can I solve a quadratic equation by factoring or using the quadratic formula?

Scope and Sequence

- Students will review previous concepts as they relate to simplifying polynomials for Unit 7.
- Students will learn to add, subtract, and multiply polynomials.
- Students will factor and solve quadratics.

Assured Assessments
Formative Assessment:
Students will participate in tasks including, but not limited to, a unit diagnostic assessment, notebook checks, daily warm-ups, exit slips, and/or other formative classwork assessments related to the CP Algebra I curriculum. Skills checks (e.g., diagnostic assessment, notebook checks, exit slips) will count as 30% of the marking period grade; skills practice (e.g., daily warm-ups, other classwork assignments) will count as 50% of the marking period grade.
Summative Assessment:
A summative practice test will be given in preparation for the Unit 7 end-of-unit assessment in CP Algebra I. This will count as 20% of the marking period grade.

Resources
<u>Core</u>

- Charles, Randall I., et al. *Algebra 1*. New York: Pearson, 2015. Print.
    - Sections 8-1, 8-2, 8-3, 8-4, 8-5, 8-7, 9-4, & 9-6

<u>Supplemental</u>

- CSDE CTHSS Moodle for Algebra I

Time Allotment

- Approximately 40 days, with later reinforcement as needed

UNIT 8

Semester 1 Review, CP Algebra I Unit 8 Support and Reinforcement, Final Exam Review

Unit Goals

At the completion of this unit, students will:

- Reinforce identified areas of weakness from previous CP Algebra I units
- Learn skills to help support the CP Algebra I Unit 8: One-Variable Statistics

Unit Essential Questions

- What are the advantages and disadvantages to analyzing data by hand versus by using technology?
- How can I use everything I have learned in CP Algebra I to be successful on the final examination?

Scope and Sequence

- Students will explore measures of central tendency and spread and displays of one-variable data, including box-and-whisker plots.
- Students will use the five-number summary to create box-and-whisker plots and identify outliers.
- Students will be introduced to using the STAT menu on the graphing calculator.
- Following a final review, students will independently prepare for the CP Algebra I final examination using previously completed notes and study guides.

Assured Assessments

Formative Assessment:

Students will participate in tasks including, but not limited to, a unit diagnostic assessment, notebook checks, daily warm-ups, exit slips, and/or other formative classwork assessments related to the CP Algebra I curriculum. Skills checks (e.g., diagnostic assessment, notebook checks, exit slips) will count as 30% of the marking period grade; skills practice (e.g., daily warm-ups, other classwork assignments) will count as 50% of the marking period grade.

Summative Assessment:

A summative practice test will be given in preparation for the Unit 8 end-of-unit assessment in CP Algebra I. This, along with final review assessments, will count as 20% of the marking period grade.

Resources

Core

- Charles, Randall I., et al. *Algebra 1*. New York: Pearson, 2015. Print.
    - Sections 12-2, 12-3, & 12-4

Supplemental

- CSDE CTHSS Moodle for Algebra I

Time Allotment

- Approximately 8 days, with later reinforcement as needed

COURSE CREDIT

One credit in Mathematics
One class period every other day for a full year

PREREQUISITES

Concurrent enrollment in CP Algebra I

TEXT

Charles, Randall I., et al. *Algebra 1*. New York: Pearson, 2015. Print.

SUPPLEMENTARY MATERIALS/RESOURCES/TECHNOLOGY

Department- and teacher-prepared materials

TI-84 Plus graphing calculators

CURRENT REFERENCES

2010 Connecticut Core Standards for Mathematics
http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf

CSDE CTHSS Moodle for Algebra I
http://tinyurl.com/cthssmoodle: CSDE-Mathematics-CT

ASSURED STUDENT PERFORMANCE RUBRICS

- Trumbull High School School-Wide Writing Rubric
- Trumbull High School School-Wide Problem-Solving Rubric
- Trumbull High School School-Wide Independent Learning and Thinking Rubric

SCHOOL-WIDE RUBRICS

Rubric 2: Write Effectively

Category/ Weight	Exemplary 4 Student work:	Goal 3 Student work:	Working Toward Goal 2 Student work:	Needs Support 1-0 Student work:
Purpose X_____	• Establishes and maintains a clear purpose • Demonstrates an insightful understanding of audience and task	• Establishes and maintains a purpose • Demonstrates an accurate awareness of audience and task	• Establishes a purpose • Demonstrates an awareness of audience and task	• Does not establish a clear purpose • Demonstrates limited/no awareness of audience and task
Organization X_____	• Reflects sophisticated organization throughout • Demonstrates logical progression of ideas • Maintains a clear focus • Utilizes effective transitions	• Reflects organization throughout • Demonstrates logical progression of ideas • Maintains a focus • Utilizes transitions	• Reflects some organization throughout • Demonstrates logical progression of ideas at times • Maintains a vague focus • May utilize some ineffective transitions	• Reflects little/no organization • Lacks logical progression of ideas • Maintains little/no focus • Utilizes ineffective or no transitions
Content X_____	• Is accurate, explicit, and vivid • Exhibits ideas that are highly developed and enhanced by specific details and examples	• Is accurate and relevant • Exhibits ideas that are developed and supported by details and examples	• May contain some inaccuracies • Exhibits ideas that are partially supported by details and examples	• Is inaccurate and unclear • Exhibits limited/no ideas supported by specific details and examples
Use of Language X_____	• Demonstrates excellent use of language • Demonstrates a highly effective use of standard writing that enhances communication • Contains few or no errors. Errors do not detract from meaning	• Demonstrates competent use of language • Demonstrates effective use of standard writing conventions • Contains few errors. Most errors do not detract from meaning	• Demonstrates use of language • Demonstrates use of standard writing conventions • Contains errors that detract from meaning	• Demonstrates limited competency in use of language • Demonstrates limited use of standard writing conventions • Contains errors that make it difficult to determine meaning

Rubric 3: Problem Solving through Critical Thinking

Category/Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Understanding X_____	Student demonstrates clear understanding of the problem and the complexities of the task	Student demonstrates sufficient understanding of the problem and most of the complexities of the task	Student demonstrates some understanding of the problem but requires assistance to complete the task	Student demonstrates limited or no understanding of the fundamental problem after assistance with the task
Research X_____	Student gathers compelling information from multiple sources including digital, print, and interpersonal	Student gathers sufficient information from multiple sources including digital, print, and interpersonal	Student gathers some information from few sources including digital, print, and interpersonal	Student gathers limited or no information
Reasoning and Strategies X_____	Student demonstrates strong critical thinking skills to develop a comprehensive plan integrating multiple strategies	Student demonstrates sufficient critical thinking skills to develop a cohesive plan integrating strategies	Student demonstrates some critical thinking skills to develop a plan integrating some strategies	Student demonstrates limited or no critical thinking skills and no plan
Final Product and/or Presentation X_____	Solution shows deep understanding of the problem and its components. Solution shows extensive use of 21st Century Technology Skills.	Solution shows sufficient understanding of the problem and its components. Solution shows sufficient use of 21st Century Technology Skills.	Solution shows some understanding of the problem and its components. Solution shows some use of 21st Century Technology Skills.	Solution shows limited or no understanding of the problem and its components. Solution shows limited or no use of 21st Century Technology Skills.

Rubric 5: Independent Learners And Thinkers

Category/Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Proposal X_____	Student demonstrates a strong sense of initiative by generating compelling questions, creating uniquely original projects/work.	Student demonstrates initiative by generating appropriate questions, creating original projects/work.	Student demonstrates some initiative by generating questions, creating appropriate projects/work.	Student demonstrates limited or no initiative by generating few questions and creating projects/work.
Independent Research & Development X_____	Student is analytical, insightful, and works independently to reach a solution.	Student is analytical, and works productively to reach a solution.	Student reaches a solution with direction.	Student is unable to reach a solution without consistent assistance.
Presentation of Finished Product X_____	Presentation shows compelling evidence of an independent learner and thinker. Solution shows deep understanding of the problem and its components. Solution shows extensive and appropriate application of 21st Century Skills.	Presentation shows clear evidence of an independent learner and thinker. Solution shows adequate understanding of the problem and its components. Solution shows adequate application of 21st Century Skills.	Presentation shows some evidence of an independent learner and thinker. Solution shows some understanding of the problem and its components. Solution shows some application of 21st Century Skills.	Presentation shows limited or no evidence of an independent learner and thinker. Solution shows limited or no understanding of the problem. Solution shows limited or no application of 21st Century Skills.