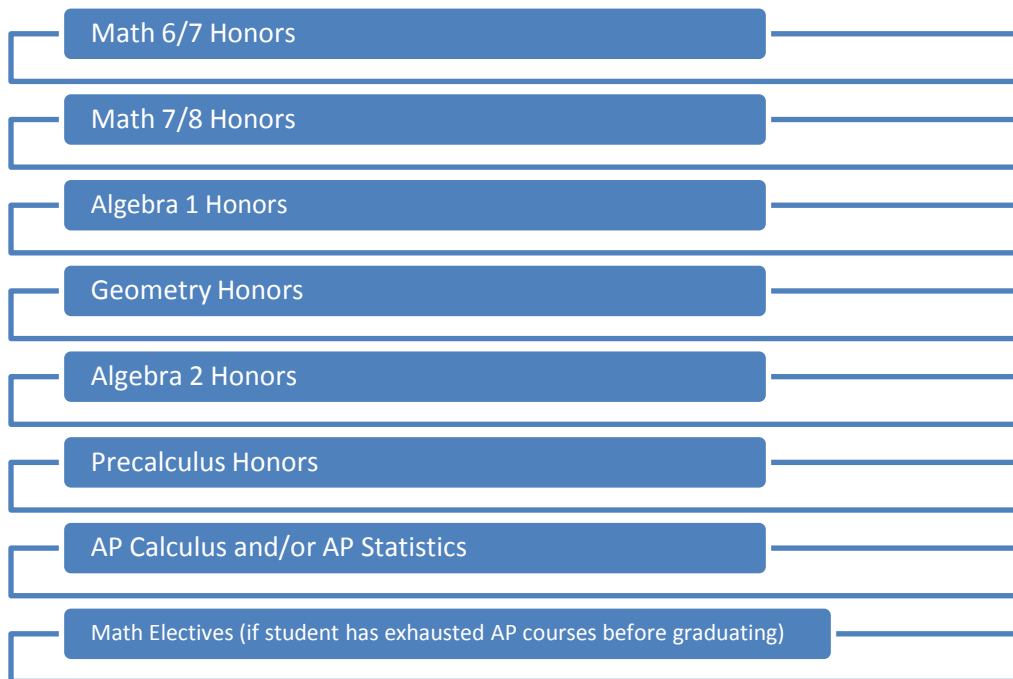


Math 6/7 Honors - Expectations for Exit Exam/Testing Out

The purpose of the exit exam is to give current fifth grade students who have already mastered the Math 6/7 Honors curriculum the opportunity to demonstrate their proficiency. Students who earn a passing grade on the exit exam will be placed in Math 7/8 Honors in the fall. These students will continue on the honors mathematics pathway one year ahead of their peers (see below). Students who are accelerated on this pathway may need to take classes at the high school at some point during their middle school years. Students who do not earn a passing grade will be enrolled in Math 6 or Math 6/7 Honors based on district placement criteria.

Note: Students are placed into Math 6/7 Honors based on standardized test scores and previous mathematics performance. Placement into Math 6/7 Honors in sixth grade does not require a separate test. The exit exam is only for students who have already obtained mastery of the full Math 6/7 Honors curriculum and wish to “skip a grade” in mathematics.

The Honors Mathematics Sequence/Pathway:



Content Covered in the Course: The Troy School District curriculum is based on the Michigan Mathematics Standards. The following list gives a brief description of the topics covered in the Math 6-7 Honors textbook and their correlation to the tested standards. For a detailed explanation of the content expectations, see the complete list of Michigan Mathematics Standards. Math 6-7 Honors contains content expectations from both grade 6 and grade 7.

http://www.michigan.gov/documents/mde/K-12_MI_Math_Standards_REV_470033_7.pdf

The Exit Exam is a comprehensive assessment of the full Troy School District Curriculum and Michigan Mathematics Standards. Students should be prepared to demonstrate their proficiency on all content.

Text Book Information: *Big Ideas Math – Advanced 1*, published by Big Ideas Learning, 2014

Authors: Ron Larson & Laurie Boswell

ISBN-13: 978-1-60840-526-8

COMMON CORE STATE STANDARDS TO BOOK CORRELATION FOR GRADE 6 ADVANCED

After a standard is introduced, it is revisited many times in subsequent activities, lessons, and exercises.

Domain: Ratios and Proportional Relationships

Standards

- 6.RP.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
- **Section 5.1** Ratios
 - **Section 5.2** Ratio Tables
 - **Section 5.3** Rates
 - **Section 5.4** Comparing and Graphing Ratios
- 6.RP.2** Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.
- **Section 5.3** Rates
 - **Section 5.4** Comparing and Graphing Ratios
- 6.RP.3** Use ratio and rate reasoning to solve real-world and mathematical problems.
- Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
 - **Section 5.2** Ratio Tables
 - **Section 5.3** Rates
 - **Section 5.4** Comparing and Graphing Ratios
 - **Section 7.4** Writing Equations in Two Variables
 - Solve unit rate problems including those involving unit pricing and constant speed.
 - **Section 5.3** Rates
 - **Section 5.4** Comparing and Graphing Ratios
 - Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, given a part and the percent.
 - **Section 5.5** Percents
 - **Section 5.6** Solving Percent Problems
 - Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
 - **Section 5.7** Converting Measures
- 7.RP.1** Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
- **Section 14.1** Ratios and Rates
- 7.RP.2** Recognize and represent proportional relationships between quantities.
- Decide whether two quantities are in a proportional relationship.
 - **Section 14.2** Proportions
 - **Extension 14.2** Graphing Proportional Relationships
 - **Section 14.6** Direct Variation

- b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, and diagrams, and verbal descriptions of proportional relationships.
 - **Extension 14.2** Graphing Proportional Relationships
 - **Section 14.4** Solving Proportions
 - **Section 14.5** Slope
 - **Section 14.6** Direct Variation
 - c. Represent proportional relationships by equations.
 - **Section 14.3** Writing Proportions
 - **Section 14.4** Solving Proportions
 - **Section 14.6** Direct Variation
 - d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.
 - **Extension 14.2** Graphing Proportional Relationships
 - **Section 14.6** Direct Variation
- 7.RP.3** Use proportional relationships to solve multistep ratio and percent problems.
- **Section 14.1** Ratios and Rates
 - **Section 14.3** Writing Proportions
 - **Section 15.3** The Percent Proportion
 - **Section 15.4** The Percent Equation
 - **Section 15.5** Percents of Increase and Decrease
 - **Section 15.6** Discounts and Markups
 - **Section 15.7** Simple Interest

Domain: The Number System

Standards

- 6.NS.1** Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.
- **Section 2.1** Multiplying Fractions
 - **Section 2.2** Dividing Fractions
 - **Section 2.3** Dividing Mixed Numbers
- 6.NS.2** Fluently divide multi-digit numbers using the standard algorithm.
- **Section 1.1** Whole Number Operations
- 6.NS.3** Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
- **Section 2.4** Adding and Subtracting Decimals
 - **Section 2.5** Multiplying Decimals
 - **Section 2.6** Dividing Decimals
- 6.NS.4** Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.
- **Section 1.4** Prime Factorization
 - **Section 1.5** Greatest Common Factor
 - **Section 1.6** Least Common Multiple
 - **Extension 1.6** Adding and Subtraction Fractions
 - **Section 3.4** The Distributive Property
 - **Extension 3.4** Factoring Expressions

- 6.NS.5** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
- **Section 6.1** Integers
 - **Section 6.3** Fractions and Decimals on the Number Line
- 6.NS.6** Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
- a.** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, and that 0 is its own opposite.
- **Section 6.1** Integers
 - **Section 6.3** Fractions and Decimals on the Number Line
- b.** Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
- **Section 6.5** The Coordinate Plane
 - **Extension 6.5** Reflecting Points in the Coordinate Plane
- c.** Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
- **Section 6.1** Integers
 - **Section 6.2** Comparing and Ordering Integers
 - **Section 6.3** Fractions and Decimals on the Number Line
 - **Section 6.4** Absolute Value
 - **Section 6.5** The Coordinate Plane
 - **Extension 6.5** Reflecting Points in the Coordinate Plane
- 6.NS.7** Understand ordering and absolute value of rational numbers.
- a.** Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
- **Section 6.2** Comparing and Ordering Integers
 - **Section 6.3** Fractions and Decimals on the Number Line
 - **Section 6.4** Absolute Value
- b.** Write, interpret, and explain statements of order for rational numbers in real-world contexts.
- **Section 6.2** Comparing and Ordering Integers
 - **Section 6.3** Fractions and Decimals on the Number Line
 - **Section 6.4** Absolute Value
- c.** Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.
- **Section 6.4** Absolute Value
- d.** Distinguish comparisons of absolute value from statements about order.
- **Section 6.4** Absolute Value
- 6.NS.8** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distance between points with the same first coordinate or the same second coordinate.
- **Section 6.5** The Coordinate Plane

- 7.NS.1** Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
- Describe situations in which opposite quantities combine to make 0.
 - **Section 11.1** Integers and Absolute Value
 - **Section 11.2** Adding Integers
 - **Section 12.2** Adding Rational Numbers
 - Understand $p + q$ as the number located a distance $|q|$ from p , in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have the sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
 - **Section 11.1** Integers and Absolute Value
 - **Section 11.2** Adding Integers
 - **Section 12.2** Adding Rational Numbers
 - Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
 - **Section 11.1** Integers and Absolute Value
 - **Section 11.3** Subtracting Integers
 - **Section 12.3** Subtracting Rational Numbers
 - Apply properties of operations as strategies to add and subtract rational numbers.
 - **Section 11.1** Integers and Absolute Value
 - **Section 11.2** Adding Integers
 - **Section 11.3** Subtracting Integers
 - **Section 12.2** Adding Rational Numbers
 - **Section 12.3** Subtracting Rational Numbers
- 7.NS.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
- Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
 - **Section 11.1** Integers and Absolute Value
 - **Section 11.4** Multiplying Integers
 - **Section 12.4** Multiplying and Dividing Rational Integers
 - Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.
 - **Section 11.1** Integers and Absolute Value
 - **Section 11.5** Dividing Integers
 - **Section 12.1** Rational Numbers
 - **Section 12.4** Multiplying and Dividing Rational Numbers
 - Apply properties of operations as strategies to multiply and divide rational numbers.
 - **Section 11.1** Integers and Absolute Value
 - **Section 11.4** Multiplying Integers
 - **Section 12.4** Multiplying and Dividing Rational Numbers
 - Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
 - **Section 11.1** Integers and Absolute Value
 - **Section 12.1** Rational Numbers

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.

- **Section 11.1** Integers and Absolute Value
- **Section 11.2** Adding Integers
- **Section 11.3** Subtracting Integers
- **Section 11.4** Multiplying Integers
- **Section 11.5** Dividing Integers
- **Section 12.2** Adding Rational Numbers
- **Section 12.3** Subtracting Rational Numbers
- **Section 12.4** Multiplying and Dividing Rational Numbers

Domain: Expressions and Equations

Standards

6.EE.1 Write and evaluate numerical expressions involving whole-number exponents.

- **Section 1.2** Powers and Exponents
- **Section 1.3** Order of Operations

6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers.

- a. Write expressions that record operations with numbers and with letters standing for numbers.
 - **Section 3.2** Writing Expressions
- b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.
 - **Section 1.5** Greatest Common Factor
 - **Section 3.4** The Distributive Property
 - **Extension 3.4** Factoring Expressions
- c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
 - **Section 3.1** Algebraic Expressions

6.EE.3 Apply the properties of operations to general equivalent expressions.

- **Section 3.3** Properties of Addition and Multiplication
- **Section 3.4** The Distributive Property
- **Extension 3.4** Factoring Expressions

6.EE.4 Identify when two expressions are equivalent.

- **Section 3.3** Properties of Addition and Multiplication
- **Section 3.4** The Distributive Property
- **Extension 3.4** Factoring Expressions

6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

- **Section 7.2** Solving Equations Using Addition or Subtraction
- **Section 7.3** Solving Equations Using Multiplication or Division
- **Section 7.5** Writing and Graphing Inequalities
- **Section 7.6** Solving Inequalities Using Addition or Subtraction
- **Section 7.7** Solving Inequalities Using Multiplication or Division

- 6.EE.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
- **Section 3.2** Writing Expressions
 - **Section 3.3** Properties of Addition and Multiplication
 - **Section 3.4** The Distributive Property
 - **Section 7.1** Writing Equations in One Variable
- 6.EE.7** Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q , and x are all nonnegative rational numbers.
- **Section 7.1** Writing Equations in One Variable
 - **Section 7.2** Solving Equations Using Addition or Subtraction
 - **Section 7.3** Solving Equations Using Multiplication or Division
- 6.EE.8** Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.
- **Section 7.5** Writing and Graphing Inequalities
 - **Section 7.6** Solving Inequalities Using Addition or Subtraction
 - **Section 7.7** Solving Inequalities Using Multiplication or Division
- 6.EE.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.
- **Section 7.4** Writing Equations in Two Variables
- 7.EE.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
- **Section 13.1** Algebraic Expressions
 - **Section 13.2** Adding and Subtracting Linear Expressions
 - **Extension 13.2** Factoring Expressions
- 7.EE.2** Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
- **Section 13.1** Algebraic Expressions
 - **Section 13.2** Adding and Subtracting Linear Expressions
- 7.EE.3** Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimal), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
- **Section 15.1** Percents and Decimals
 - **Section 15.2** Comparing and Ordering Fractions, Decimals, and Percents
 - **Section 15.4** The Percent Equation

- 7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
- a.** Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
- **Section 13.3** Solving Equations Using Addition or Subtraction
 - **Section 13.4** Solving Equations Using Multiplication or Division
 - **Section 13.5** Solving Two-Step Equations

Domain: Geometry

Standards

- 6.G.1** Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
- **Section 4.1** Areas of Parallelograms
 - **Section 4.2** Areas of Triangles
 - **Section 4.3** Areas of Trapezoids
 - **Extension 4.3** Areas of Composite Figures
- 6.G.2** Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge length of the prism. Apply the formulas $V = \ell wh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
- **Section 8.4** Volumes of Rectangular Prisms
- 6.G.3** Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
- **Section 4.4** Polygons in the Coordinate Plane
- 6.G.4** Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
- **Section 8.1** Three-Dimensional Figures
 - **Section 8.2** Surface Areas of Prisms
 - **Section 8.3** Surface Areas of Pyramids

Domain: Statistics and Probability

Standards

- 6.SP.1** Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
- **Section 9.1** Introduction to Statistics

- 6.SP.2** Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
- **Section 9.1** Introduction to Statistics
 - **Section 9.2** Mean
 - **Section 9.3** Measures of Center
 - **Section 9.4** Measures of Variation
 - **Section 9.5** Mean Absolute Deviation
 - **Section 10.2** Histograms
 - **Section 10.3** Shapes of Distributions
 - **Section 10.4** Box-and-Whisker Plots
- 6.SP.3** Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.
- **Section 9.2** Mean
 - **Section 9.3** Measures of Center
 - **Section 9.4** Measures of Variation
 - **Section 9.5** Mean Absolute Deviation
- 6.SP.4** Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
- **Section 9.1** Introduction to Statistics
 - **Section 10.1** Stem-and-Leaf Plots
 - **Section 10.2** Histograms
 - **Section 10.3** Shapes of Distributions
 - **Section 10.4** Box-and-Whisker Plots
- 6.SP.5** Summarize numerical data sets in relation to their context, such as by:
- a. Reporting the number of observations.
 - **Section 9.1** Introduction to Statistics
 - **Section 9.2** Mean
 - **Section 9.5** Mean Absolute Deviation
 - b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
 - **Section 9.1** Introduction to Statistics
 - c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
 - **Section 9.2** Mean
 - **Section 9.3** Measures of Center
 - **Section 9.4** Measures of Variation
 - **Section 9.5** Mean Absolute Deviation
 - **Section 10.4** Box-and-Whisker Plots
 - d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.
 - **Extension 10.3** Choosing Appropriate Measures

Common Core State Standards for Mathematical Practice

Make sense of problems and persevere in solving them.

- Multiple representations are presented to help students move from concrete to representative and into abstract thinking
- *Essential Questions* help students focus and analyze
- *In Your Own Words* provide opportunities for students to look for meaning and entry points to a problem

Reason abstractly and quantitatively.

- Visual problem solving models help students create a coherent representation of the problem
- Opportunities for students to decontextualize and contextualize problems are presented in every lesson

Construct viable arguments and critique the reasoning of others.

- *Error Analysis; Different Words, Same Question; and Which One Doesn't Belong* features provide students the opportunity to construct arguments and critique the reasoning of others
- *Inductive Reasoning* activities help students make conjectures and build a logical progression of statements to explore their conjecture

Model with mathematics.

- Real-life situations are translated into diagrams, tables, equations, and graphs to help students analyze relations and to draw conclusions
- Real-life problems are provided to help students learn to apply the mathematics that they are learning to everyday life

Use appropriate tools strategically.

- *Graphic Organizers* support the thought process of what, when, and how to solve problems
- A variety of tool papers, such as graph paper, number lines, and manipulatives, are available as students consider how to approach a problem
- Opportunities to use the web, graphing calculators, and spreadsheets support student learning

Attend to precision.

- *On Your Own* questions encourage students to formulate consistent and appropriate reasoning
- Cooperative learning opportunities support precise communication

Look for and make use of structure.

- *Inductive Reasoning* activities provide students the opportunity to see patterns and structure in mathematics
- Real-world problems help students use the structure of mathematics to break down and solve more difficult problems

Look for and express regularity in repeated reasoning.

- Opportunities are provided to help students make generalizations
- Students are continually encouraged to check for reasonableness in their solutions

Go to BigIdeasMath.com for more information on the Common Core State Standards for Mathematical Practice.