

**COURSE: Math A2 – 15:1**  
**GRADE LEVEL: 10**

MAIN/GENERAL TOPIC:	SUB-TOPIC:	ESSENTIAL QUESTIONS:	WHAT THE STUDENTS WILL KNOW OR BE ABLE TO DO:	SKILLS:	WHEN STUDENT DOES IT:	ASSESSMENTS:
NUMBER THEORY	<ul style="list-style-type: none"> <li>Real Numbers</li> </ul>	<ul style="list-style-type: none"> <li>Are all #'s the same?</li> <li>How many #'s are there?</li> </ul>	<ul style="list-style-type: none"> <li>Explain Real Numbers</li> <li>Identify Rational vs. Irrational #'s</li> <li>Identify Integer vs. Whole vs. Counting Numbers</li> </ul>	<ul style="list-style-type: none"> <li>Identify which numbers make up the different number sets</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Test</li> </ul>
	<ul style="list-style-type: none"> <li>Signed Numbers</li> </ul>	<ul style="list-style-type: none"> <li>Is +2 smaller or larger than -10?</li> </ul>	<ul style="list-style-type: none"> <li>Add/subtract</li> <li>Multiply/divide</li> <li>Understand order</li> </ul>	<ul style="list-style-type: none"> <li>Identify where numbers fall on the number line</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
OPERATIONS AND PROPERTIES	<ul style="list-style-type: none"> <li>Operations (Order of Ops)</li> </ul>	<ul style="list-style-type: none"> <li>Can you do operations in any order?</li> </ul>	<ul style="list-style-type: none"> <li>Follow correct Order of Operations (PEMDAS)</li> </ul>	<ul style="list-style-type: none"> <li>Identify the meaning of PEMDAS</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Properties and Systems</li> </ul>	<ul style="list-style-type: none"> <li>Can all properties be used with all operations?</li> </ul>	<ul style="list-style-type: none"> <li>Correctly utilize properties in solving equations (clock, commutative, associative, distributive, identity, inverse, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Identify different properties and recognize examples of each</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Expressions (Evaluating)</li> </ul>	<ul style="list-style-type: none"> <li>Is it important to follow order of operation?</li> </ul>	<ul style="list-style-type: none"> <li>Use signed numbers and Order of Operations to evaluate algebraic expression</li> </ul>	<ul style="list-style-type: none"> <li>Identify the difference between expressions and equations</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Unit Test</li> </ul>
ALGEBRA-MONOMIALS	<ul style="list-style-type: none"> <li>Variables</li> </ul>	<ul style="list-style-type: none"> <li>What is a variable?</li> </ul>	<ul style="list-style-type: none"> <li>Use variables in equations</li> <li>Explain algebraic terminology</li> </ul>	<ul style="list-style-type: none"> <li>Identify variables</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>

	<ul style="list-style-type: none"> <li>Verbal Phrases</li> </ul>	<ul style="list-style-type: none"> <li>Twice a number means what?</li> </ul>	<ul style="list-style-type: none"> <li>Translate verbal phrase into algebraic language</li> </ul>	<ul style="list-style-type: none"> <li>Recognize basic terminology</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>One and Two Step Equations</li> </ul>	<ul style="list-style-type: none"> <li>How do you solve equations?</li> </ul>	<ul style="list-style-type: none"> <li>Follow steps to solve one and two step equations</li> </ul>	<ul style="list-style-type: none"> <li>Identify steps to solve equations</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Solving Equations (Strategies)</li> </ul>	<ul style="list-style-type: none"> <li>Is there more than one way to solve most problems?</li> </ul>	<ul style="list-style-type: none"> <li>Employ different strategies</li> <li>Choose appropriate strategies</li> <li>Combine strategies (i.e.; clear fractions, set to zero, etc)</li> </ul>	<ul style="list-style-type: none"> <li>Recognize that there are different strategies to find the correct answer</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Unit Test</li> </ul>
ALGEBRA-POLYNOMIALS	<ul style="list-style-type: none"> <li>Algebraic Expressions (Operations)</li> </ul>	<ul style="list-style-type: none"> <li>What is a like term?</li> </ul>	<ul style="list-style-type: none"> <li>Add/Subtract/Multiply/Divide monomials and polynomials</li> </ul>	<ul style="list-style-type: none"> <li>Identify like terms</li> </ul>	October	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Word Problems</li> </ul>	<ul style="list-style-type: none"> <li>How does using variables help us solve problems?</li> </ul>	<ul style="list-style-type: none"> <li>Translate verbal phrases into algebraic equations</li> <li>Use equations to solve problems</li> <li>Use "let" statements</li> </ul>	<ul style="list-style-type: none"> <li>Identify let statements from given word problems</li> </ul>	October	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Unit Test</li> </ul>
FACTORIZING AND QUADRATICS	<ul style="list-style-type: none"> <li>Factoring (Polynomials)</li> </ul>	<ul style="list-style-type: none"> <li>How are FOIL and factoring related?</li> </ul>	<ul style="list-style-type: none"> <li>Find Greatest Common Factor (GCF)</li> <li>Identify Difference of Two Perfect Squares</li> <li>Employ FOIL backwards</li> </ul>	<ul style="list-style-type: none"> <li>Use calculator to find GCF's</li> <li>Identify perfect squares</li> <li>Identify and use FOIL</li> </ul>	October	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Quadratic Equations</li> </ul>	<ul style="list-style-type: none"> <li>How does factoring help us solve equations?</li> </ul>	<ul style="list-style-type: none"> <li>Identify quadratic equations</li> <li>Identify quadratic in Standard Form</li> <li>Factor quadratic equations</li> </ul>	<ul style="list-style-type: none"> <li>Identify quadratic equations rule</li> </ul>	October	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Solving Quadratics</li> </ul>	<ul style="list-style-type: none"> <li>Why do we set quadratic equal to zero?</li> </ul>	<ul style="list-style-type: none"> <li>Manipulate equations to get into standard form</li> <li>Utilize factoring to solve equations</li> </ul>	<ul style="list-style-type: none"> <li>Use calculator to find roots of quadratic equations</li> </ul>	October	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>

	<ul style="list-style-type: none"> <li>Graphing Quadratics</li> </ul>	<ul style="list-style-type: none"> <li>What does the graph show us?</li> </ul>	<ul style="list-style-type: none"> <li>Input equations into graphing calculator</li> <li>Identify points of interest</li> </ul>	<ul style="list-style-type: none"> <li>Use calculator to graph quadratics and find roots using that graph</li> </ul>	October	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Unit Test</li> </ul>
ALGEBRAIC FRACTION	<ul style="list-style-type: none"> <li>Lowest Terms</li> </ul>	<ul style="list-style-type: none"> <li>How do we simplify rational expressions?</li> </ul>	<ul style="list-style-type: none"> <li>Reduce fractions to lowest terms</li> </ul>	<ul style="list-style-type: none"> <li>Identify factoring rules</li> </ul>	October	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Operations</li> </ul>	<ul style="list-style-type: none"> <li>How do we find common denominators?</li> </ul>	<ul style="list-style-type: none"> <li>Multiply and divide fractions</li> <li>Add and subtract fractions with and without common denominator</li> </ul>	<ul style="list-style-type: none"> <li>Identify rules for multiplying, dividing, adding and subtracting fractions</li> </ul>	November	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Solving Fractional Equations</li> </ul>	<ul style="list-style-type: none"> <li>How do we solve fractional equations?</li> </ul>	<ul style="list-style-type: none"> <li>Utilize steps and patterns to solve fractional equations (i.e., CLEAR THE FRACTIONS)</li> <li>Factor, Clear, Combine</li> </ul>	<ul style="list-style-type: none"> <li>Identify steps to solve algebraic fractions</li> </ul>	November	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Unit Test</li> </ul>
STATISTICS	<ul style="list-style-type: none"> <li>Collecting Data</li> </ul>	<ul style="list-style-type: none"> <li>How do people mislead others using stats?</li> </ul>	<ul style="list-style-type: none"> <li>Collect appropriate data (i.e. biased)</li> <li>Explain different sampling techniques</li> <li>Utilize random selection</li> </ul>	<ul style="list-style-type: none"> <li>Identify appropriate types of data collection</li> </ul>	November	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Organizing Data</li> </ul>	<ul style="list-style-type: none"> <li>How can data be represented?</li> </ul>	<ul style="list-style-type: none"> <li>Develop frequency tables, stem and leaf diagrams, box and whisker plots and histograms</li> </ul>	<ul style="list-style-type: none"> <li>Identify different ways to present data</li> </ul>	November	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Central Tendency</li> </ul>	<ul style="list-style-type: none"> <li>How can you manipulate data to form wanted conclusions?</li> </ul>	<ul style="list-style-type: none"> <li>Identify and explain central tendency</li> <li>Calculate mean, median, mode, range</li> </ul>	<ul style="list-style-type: none"> <li>Identify mean, median and mode</li> </ul>	December	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Unit Test</li> </ul>
PROBABILITY	<ul style="list-style-type: none"> <li>Simple</li> </ul>	<ul style="list-style-type: none"> <li>How can you evaluate simple probability?</li> </ul>	<ul style="list-style-type: none"> <li>Define sample space, event, outcome, fair and biased objects</li> <li>Use complements/Venn Diagrams</li> </ul>	<ul style="list-style-type: none"> <li>Identify basic probability terminology</li> </ul>	December	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>

	<ul style="list-style-type: none"> <li>Compound</li> </ul>	<ul style="list-style-type: none"> <li>How can you tell if the event is independent or dependent?</li> </ul>	<ul style="list-style-type: none"> <li>Understand the differences between simple and compound probability; dependent and independent events</li> <li>Explain where and how to use tree diagrams</li> <li>Calculate probability of events using with or without replacement</li> </ul>	<ul style="list-style-type: none"> <li>Construct tree diagrams and use to calculate probabilities</li> </ul>	December	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Permutations/Combinations</li> </ul>	<ul style="list-style-type: none"> <li>When should you use a combination or permutation?</li> </ul>	<ul style="list-style-type: none"> <li>Understand the differences between combinations and permutations</li> </ul>	<ul style="list-style-type: none"> <li>Identify permutations and combinations</li> </ul>	December	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Unit Test</li> </ul>
<b>MIDTERM</b>						
RADICALS	<ul style="list-style-type: none"> <li>Square Roots (AN.2, AN.3)</li> </ul>	<ul style="list-style-type: none"> <li>What operations are similar between radicals and variables?</li> </ul>	<ul style="list-style-type: none"> <li>Simplify radicals</li> <li>Find square roots in simplest form</li> <li>Add, subtract, multiply, divide radicals</li> </ul>	<ul style="list-style-type: none"> <li>Identify rules for adding, subtracting, multiplying and dividing radicals</li> </ul>	January	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
RATIOS & PROPORTIONS	<ul style="list-style-type: none"> <li>Properties</li> </ul>	<ul style="list-style-type: none"> <li>What does a proportion or ratio show?</li> </ul>	<ul style="list-style-type: none"> <li>Identify ratios and proportions</li> <li>Compare unlike ratios</li> <li>Explain ratios and proportions</li> </ul>	<ul style="list-style-type: none"> <li>Identify when to use ratios/proportions</li> </ul>	January	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Direct Variation</li> </ul>	<ul style="list-style-type: none"> <li>How does one part of a ratio affect another?</li> </ul>	<ul style="list-style-type: none"> <li>Set up ratio/proportion equations</li> <li>Manipulate ratios and proportions</li> <li>Solve problems dealing with ratios</li> </ul>	<ul style="list-style-type: none"> <li>Set up problems correctly</li> <li>Identify when to cross multiply</li> </ul>	January	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Percents</li> </ul>	<ul style="list-style-type: none"> <li>Where do we use percents?</li> </ul>	<ul style="list-style-type: none"> <li>Set up percents as ratios</li> <li>Solve percent problems (taxes, interest, grades, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Identify percents and use correctly</li> </ul>	January	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Unit Test</li> </ul>

EUCLIDEAN GEOMETRY	<ul style="list-style-type: none"> <li>• Polygons &amp; Circles</li> </ul>	<ul style="list-style-type: none"> <li>• Is a circle a polygon?</li> </ul>	<ul style="list-style-type: none"> <li>• Identify types of polygons</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and draw different polygons</li> </ul>	February	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Quizzes</li> <li>• Tests</li> </ul>
	<ul style="list-style-type: none"> <li>• Measurements</li> </ul>	<ul style="list-style-type: none"> <li>• When do we use perimeter vs. area vs. volume?</li> </ul>	<ul style="list-style-type: none"> <li>• Determine which measurement is needed/wanted</li> <li>• Calculate perimeter, circumference, area, surface area, volume</li> <li>• Rounding and error measurements</li> </ul>	<ul style="list-style-type: none"> <li>• Identify uses for perimeter, circumference and area</li> <li>• Use calculator to solve equations</li> </ul>	February	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Quizzes</li> <li>• Tests</li> </ul>
	<ul style="list-style-type: none"> <li>• Right Triangle</li> </ul>	<ul style="list-style-type: none"> <li>• Why is trigonometry considered a ratio?</li> </ul>	<ul style="list-style-type: none"> <li>• Identify an angle with opposite side</li> <li>• Use sine, cosine, tangent ratios</li> <li>• Use calculator to enter and retrieve trig functions</li> <li>• Apply Pythagorean theorem</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and use formulas correctly</li> </ul>	February	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Quizzes</li> <li>• Tests</li> <li>• Unit Test</li> </ul>
COORDINATE GEOMETRY (LINEAR FUNCTIONS)	<ul style="list-style-type: none"> <li>• Open Sentences</li> </ul>	<ul style="list-style-type: none"> <li>• Can we solve equations with two variables?</li> </ul>	<ul style="list-style-type: none"> <li>• Understand equations with two variables have many solutions</li> <li>• Determine solutions set of two-variable problems</li> </ul>	<ul style="list-style-type: none"> <li>• Identify steps to solving two-variable equations</li> </ul>	March	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Quizzes</li> <li>• Tests</li> </ul>
	<ul style="list-style-type: none"> <li>• Coordinate Plane</li> </ul>	<ul style="list-style-type: none"> <li>• Are coordinate planes used in real-life?</li> </ul>	<ul style="list-style-type: none"> <li>• Graph using x- and y- axis</li> <li>• Understand meaning of input variable and output variable</li> </ul>	<ul style="list-style-type: none"> <li>• Use calculator to graph given equations</li> </ul>	March	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Quizzes</li> <li>• Tests</li> </ul>
	<ul style="list-style-type: none"> <li>• Slope and Y-intercept</li> </ul>	<ul style="list-style-type: none"> <li>• What does the slope tell us?</li> <li>• The y- intercept tells us what?</li> </ul>	<ul style="list-style-type: none"> <li>• Identify lines having positive/negative/zero/undefined slopes</li> <li>• Identify parts of the linear equation <math>y = mx + b</math></li> </ul>	<ul style="list-style-type: none"> <li>• Identify formulas and use correctly</li> </ul>	March	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Quizzes</li> <li>• Tests</li> </ul>
	<ul style="list-style-type: none"> <li>• Equations of Lines</li> </ul>	<ul style="list-style-type: none"> <li>• Can every line be shown by an equation?</li> </ul>	<ul style="list-style-type: none"> <li>• Calculate equation of a line given 2 points or given 1 point and the slope</li> <li>• Manipulate equations to get them into the form <math>y = mx + b</math></li> </ul>	<ul style="list-style-type: none"> <li>• Identify formulas and use correctly</li> </ul>	March	<ul style="list-style-type: none"> <li>• Homework</li> <li>• Quizzes</li> <li>• Tests</li> </ul>

	<ul style="list-style-type: none"> <li>Graphing</li> </ul>	<ul style="list-style-type: none"> <li>How do we use the equation of a line to graph that line?</li> </ul>	<ul style="list-style-type: none"> <li>Graph lines with positive/negative/zero/undefined slope</li> <li>Identify slopes from visual representations of a line</li> </ul>	<ul style="list-style-type: none"> <li>Identify 4 types of lines and their slopes</li> </ul>	March	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Linear Relationships</li> </ul>	<ul style="list-style-type: none"> <li>Can we tell things about lines knowing their slopes?</li> </ul>	<ul style="list-style-type: none"> <li>Identify lines that are parallel/perpendicular/vertical/horizontal by their slope</li> </ul>	<ul style="list-style-type: none"> <li>Draw appropriate conclusions</li> </ul>	April	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Solving set of Linear Equations</li> </ul>	<ul style="list-style-type: none"> <li>Is graphing an algebraic mean for solving problems?</li> </ul>	<ul style="list-style-type: none"> <li>Solve system of equations using addition/substitution/graphing</li> <li>Understand trial and error is a valid process to solve equations</li> </ul>	<ul style="list-style-type: none"> <li>Use calculator correctly to solve equations</li> </ul>	April	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Unit Test</li> </ul>
INEQUALITIES	<ul style="list-style-type: none"> <li>Properties</li> </ul>	<ul style="list-style-type: none"> <li>What is an inequality?</li> <li>How is it different?</li> </ul>	<ul style="list-style-type: none"> <li>Identify inequalities in problems</li> <li>Use addition/subtraction/multiplication/division with equalities</li> </ul>	<ul style="list-style-type: none"> <li>Identify inequalities</li> </ul>	April	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Solution Sets</li> </ul>	<ul style="list-style-type: none"> <li>How many points satisfy inequalities?</li> </ul>	<ul style="list-style-type: none"> <li>Determine solution sets of inequalities using properties</li> </ul>	<ul style="list-style-type: none"> <li>Identify steps to solve regular algebraic equations and apply</li> </ul>	April	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Unit Test</li> </ul>
EXPONENTIAL GROWTH & DECAY	<ul style="list-style-type: none"> <li>Growth</li> </ul>	<ul style="list-style-type: none"> <li>How do we calculate how much money we will earn over a long period of time?</li> </ul>	<ul style="list-style-type: none"> <li>Determine which equations deal with growth</li> <li>Apply formula to calculate money earned</li> </ul>	<ul style="list-style-type: none"> <li>Identify appropriate formula and use correctly</li> </ul>	May/June	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Decay</li> </ul>	<ul style="list-style-type: none"> <li>What is depreciation?</li> <li>How do we calculate depreciation?</li> </ul>	<ul style="list-style-type: none"> <li>Determine which equations deal with decay</li> <li>Apply formula to calculate money lost</li> </ul>	<ul style="list-style-type: none"> <li>Identify appropriate formula and use correctly</li> </ul>	May/June	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> <li>Unit Test</li> </ul>
REVIEW	<ul style="list-style-type: none"> <li>Review</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li>Identify questions that can be done with calculator</li> <li>Identify strategies to help answer questions</li> </ul>	<ul style="list-style-type: none"> <li>Use strategies and calculator to solve multiple choice questions</li> </ul>	June	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>

**END OF 10<sup>TH</sup> GRADE – ALGEBRA REGENTS EXAM**