

Foundations of Math 9 – Learning Targets

Section	Learning Target	Procedural Context to Master	L-T Result	Re-Test Result
Review	R.1 Numeracy Basics, Factors, Prime Factors, Square Roots and the Pythagorean Theorem and LCM <div>Workbook R.1</div>	<ul style="list-style-type: none"> Numeracy Fundamentals <ul style="list-style-type: none"> Understand Place Holder System Different Number Systems Division Basics and Divisibility Factors and Prime Factors <ul style="list-style-type: none"> Composite Numbers made up of Product of Primes Breaking down into Prime Factors using Trees Understand the relationship between Perfect Squares and Square Roots Consider how the square root of a number is the factor midpoint (e.g. $1 \times 16 = 16$, $2 \times 8 = 16$, $4 \times 4 = 16$, 4 is the square root and the midpoint of factors) Using the Pythagorean Theorem is order to solve Right Angle Triangle situations, both in and out of context Know the Hypotenuse is the longest side of the triangle 		
1	1 – 1 Adding/Subtracting Fractions and Some Basics <div>Workbook 1.1a-1.1c</div>	<ul style="list-style-type: none"> Integer Operations Understanding fraction to decimal relationship Converting Mixed to Improper (if Required) Need of Common Denominator (<i>CD</i>) Using Equivalence Properties to Achieve <i>CD</i> Operate with Numerators Only Simplify the Result 		
	1 – 2 Multiplication/Division of Fractions <div>Workbook 1.2</div>	<ul style="list-style-type: none"> Converting Mixed to Improper (if Required) Identify Common Factors Simplify Before you Multiply Identify Pattern in Equivalence for Simplification (ie. $50/100 = 1/2$) Use the Reciprocal Property $\longrightarrow \frac{2}{3} \rightarrow \frac{3}{2}$ When Changing Division to Multiplication 		
	1 – 3 Order of Operations (BEDMAS or PEDMAS) <div>Workbook 1.3</div>	<ul style="list-style-type: none"> Following the Correct Pattern <i>D/M</i> Occur at the Same Time from Left to Right <i>A/S</i> Occur at the Same Time from Left to Right Result Fully Simplified Clear and Easy to Follow 		

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2	2 – 1 <i>Exponent Basics Multiplication and Division of Common Base</i> Workbook 2.1a-2.1b	<ul style="list-style-type: none"> • Exponent to Repeated Multiplication Relationship • Negative Base with or Without Brackets <ul style="list-style-type: none"> ○ Forever Positive/Negative ○ Rewrite the Expression Without Brackets • Operate with Numerical and Variable Bases • Dealing with Negatives to get a Common Base • Add Exponents when Multiplying the Base • Subtract Exponents when Dividing the Base • Operate with Numerical and Variable Bases 		
	2 – 2 <i>Power to a Power, Zero Power, and Combined Operations</i> Workbook 2.2a-2.2b	<ul style="list-style-type: none"> • How do Brackets Affect the Results • Relationship of Division Law to Zero Power Law • Combined Operations Simplified to Achieve a Common Base when Negatives Present • Expressions with Addition and Subtraction Solved in Parts • Operate with Numerical and Variable Bases 		

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3	3 – 1 <i>The Addition and Multiplication Principle</i> <div>Workbook 3.1</div>	<ul style="list-style-type: none"> • Role of the Equal Sign in Creating/Maintaining Balance • Relationship between Subtracting and Adding Negatives • Relationship between Division and Multiplication of Rational Numbers (Fractions) • Manipulating Equations using Addition Principles <ul style="list-style-type: none"> ○ Moving from One Side of the Equal Sign to the Other ○ Wanting 0 on One Side • Manipulating Equations using Multiplication Principles <ul style="list-style-type: none"> ○ Moving from One Side of the Equal Sign to the Other ○ Wanting 1 on One Side • Solution Scenarios <ul style="list-style-type: none"> ○ No Solution Scenarios ○ Zero Solution Scenarios ○ Scenarios Ties to Contextual Situations 		
	3 – 2 <i>Collecting Like Terms and the Distributive Method</i> <div>Workbook 3.2</div>	<ul style="list-style-type: none"> • Identifying Term Similarity <ul style="list-style-type: none"> ○ x's with x's ○ 6 and 3 (Numbers with numbers) ○ x^2's with x^2's (etc.) • Multiplication Process of Distribution (<i>WATERBOMB</i>) 		
	3 – 3 <i>Eliminating Fractions and Decimals and Solving in Context</i> <div>Workbook 3.3a-3.3b</div>	<ul style="list-style-type: none"> • Using the Lowest Common Multiple (<i>LCM</i>) <ul style="list-style-type: none"> ○ Why Multiples Remove Fractions ○ Relation to the Base Ten System (for Decimals) ○ LCM Multiplied to Each Term to Maintain Balance • Solution is a Value that Maintains the Balance of the Equation <ul style="list-style-type: none"> ○ No Solution Scenarios ○ Zero Solution Scenarios ○ Scenarios tied to contextual situations 		

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4	4 – 1 Statistics + Probability <div>Workbook 4.1a-4.1b</div>	<ul style="list-style-type: none"> Understanding Statistics Vocabulary <ul style="list-style-type: none"> Sample, Population, and Bias Graphing Data (Interpret and Analyze) <ul style="list-style-type: none"> Interpolate Information within a Graph Extrapolate Information from a Graph 		
	4 – 2 Financial Literacy <div>Workbook 4.2</div>	<ul style="list-style-type: none"> Different Banking Systems and Fees Credit Cards and Debit Cards Basics Interest Calculations <ul style="list-style-type: none"> Simple Interest Compound Interest Making Sound Financial Decisions 		
5	5 – 1 Scale <div>Workbook 5.1</div>	<ul style="list-style-type: none"> Explain Scale Factor Expressed by its Ratio/Fraction <ul style="list-style-type: none"> $SF > 1$ is an <i>Enlargement</i> $SF < 1$ is a <i>Reduction</i> $SF = 1$ is the <i>Same Size</i> Scale Differences of Shapes and Drawings Scale Relationships with Metric Unit Conversions <ul style="list-style-type: none"> i.e. Map Legends: $1cm = 100km$ 		
	5 – 2 Proportions and Similarity <div>Workbook 5.2</div>	<ul style="list-style-type: none"> Setting up Proportion Statements Using Two Fractions <ul style="list-style-type: none"> Fractions or Ratios Determine Unknown Information from a Statement The Relationship Between Scale and Proportion Ratios <ul style="list-style-type: none"> Reciprocal Proportionate Ratios Signify the Scale Depending on Original/Replication Sizes Exploring how Similar Shapes have Proportionate Sides <ul style="list-style-type: none"> The Ability to Expand or Collapse the Size of a Shape Proportionally Determine Lengths of Image Information Using Proportionate Ratio Equations 		

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6	6 – 1 Polynomial Vocabulary Adding and Subtracting Polynomials <div>Workbook 6.1</div>	<ul style="list-style-type: none"> Understanding Polynomial Vocabulary <ul style="list-style-type: none"> Terms, Degree, Coefficient, Constant, Monomial, Binomial, Trinomial, Polynomial Collecting Like Terms and Simplifying Expanded Expressions Representing each Polynomial in Brackets to Distinguish the Operation Drop Brackets for Addition Distribute the Negative Sign when Subtracting 		
	6 – 2 Multiply and Divide Polynomials, Combined Operations <div>Workbook 6.2</div>	<ul style="list-style-type: none"> Monomial with Polynomial Multiplication <ul style="list-style-type: none"> Distribute into Polynomial in Brackets (Waterbomb) Connecting Exponent Laws to Multiplication (Add Exponents) and Division (Subtract Exponents) to Operations with Polynomials 		
7	7 – 1 Coordinate Plane Basics Slope-Intercept Form $y = mx + b$ <div>Workbook 7.1a-7.1c</div>	<ul style="list-style-type: none"> Two Coordinates per Point Existing in 2D space <ul style="list-style-type: none"> (x, y) Coordinates as solutions to an equation x – axis: Horizontal Axis, y – axis: Vertical Axis Whole Number and Rational Number Coordinates <ul style="list-style-type: none"> an infinite Number of Points Create Any Line 		
		<ul style="list-style-type: none"> Identifying Features of Slope-Intercept Form <ul style="list-style-type: none"> Identify the y – intercept as the b Value Identify the Slope as the m Value Determine Unknown Information from a Statement (x, y) fills into the x and y in the Equation Slope as a Rate of Change (Rise/Run) <ul style="list-style-type: none"> Change in Height with Respect to Change in Width Slope is Continuous, Steepness as a Rate of Change 		
	7 – 2 Standard Form $Ax + By = C$ and Context Questions <div>Workbook 7.2</div>	<ul style="list-style-type: none"> Conversion of Standard Form to Slope-Intercept Form x – int and y – int Coordinates <ul style="list-style-type: none"> How they fit into the Equation to Find Solutions Easier to find the Intercepts in this Form Horizontal and Vertical Line Equations <ul style="list-style-type: none"> Connected to Slope (When Possible) Solving Slope Questions in Context 		