ABE Mathematics Verification Checklist — Level 1 – Grade Level 0.0 - 1.9

Student	Instructor	Date Enrolled

M.1.1 Number Sense and Operations	Date	Initials
M.1.1.1 Associate numbers and words for numbers with quantities.		
M.1.1.2 Demonstrate an understanding that if items are rearranged, the numbers stay the same.		
M.1.1.3 Read, write, order, and compare numbers from 0 to 100.		
M.1.1.4 Recognize and count numbers through 999.		
M.1.1.5 Count by 2s, 5s, and 10s up to 100.		
M.1.1.6 Identify even and odd numbers.		
M.1.1.7 Add whole numbers up to three digits (without carrying).		
M.1.1.8 Demonstrate understanding of the concept of subtraction, i.e., as in taking away or separating, from numbers up to twenty.		
M.1.1.9 Subtract whole numbers up to three digits (without borrowing).		
M.1.1.10 Demonstrate an understanding of the times tables for the numbers 1, 2, 4, and 10.		
M.1.1.11 Halve even numbers up to 10 and double whole numbers up to 10.		
M.1.1.12 Identify place value of ones, tens, and hundreds.		
M.1.1.13 Identify basic functions (+, -, x, ÷, =, on/off) on the calculator and digits (0-9).		
M.1.1.14 Identify fractional parts (1/4, 1/3, 1/2) and whole.		
M.1.1.15 Recognize currency (up to $20.00) and coins; count and trade pennies, nickels, dimes, and quarters to 100 cents.		
M.1.1.16 Make and verify change.		

M.2.1 Measurement	Date	Initials
M.2.1.1 Recognize and record time to the nearest hour and half hour, from an analog and digital clock, including understanding the meaning between am and pm.		
M.2.1.2 Interpret numeric representations of dates.		
M.2.1.3 Understand use of standard US linear measurements (inches, feet).		
M.2.1.4 Understand use of standard US capacity measurements (cups, pints, quarts, and gallons).		

M.3.1 Geometry	Date	Initials
M.3.1.1 Model and use directional and positional vocabulary appropriately.		
M.3.1.2 Demonstrate an understanding of perimeter being the measure around the outside edges of squares and rectangles.		
M.3.1.3 Identify and describe the properties of common two-dimensional shapes (square, circle, rectangle, triangle) using everyday language (straight, curved, etc.).		

M.4.1 Data Analysis and Probability	Date	Initials
M.4.1.1 Identify and name various simple visual data (graphs, charts, tables) found in authentic publications.		
M.4.1.2 Interpret data organized in basic categories and groupings.		
M.4.1.3 Collect, label, and order numerical information for a particular purpose (e.g., to count and list stock).		

M.5.1 Algebra	Date	Initials
M.5.1.1 Identify basic number patterns and relationships inherent in addition and subtraction.		
M.5.1.2 Sort up to 20 objects or lists by color, shape, number, letter, or size.		
M.5.1.3 Understand and complete simple number sentences.		

Student	Instructor	Date Enrolled

M.1.2 Number Sense and Operations	Date	Initials
M.1.2.1 Read, write, order, and compare numbers in the thousands including identifying place value.		
M.1.2.2 Demonstrate understanding of the concept of addition (i.e., as in adding on or combining), including the role of place value.		
M.1.2.3 Add whole numbers up to three digits using carrying.		
M.1.2.4 Subtract whole numbers up to three digits using borrowing and checking. Demonstrate an understanding of how addition and subtraction relate to each other by checking answers using addition.		
M.1.2.5 Demonstrate understanding of the concept of multiplication, including the role of place value.		
M.1.2.6 Demonstrate an understanding of multiplying by 10 and 100.		
M.1.2.7 Multiply whole numbers up to three digits by one digit using carrying.		
M.1.2.8 Demonstrate understanding of the concept of division including the role of place value.		
M.1.2.9 Divide whole numbers up to hundreds by one digit.		
M.1.2.10 Use rounding and estimation for tens and hundreds.		
M.1.2.11 Demonstrate an understanding that even numbers can be paired and that odd numbers represent amounts that when paired have one remaining.		
M.1.2.12 Know all pairs of numbers with a total of 10.		
M.1.2.13 Identify multiples of 2, 3, 4, 5, and 10 up to x 10.		
M.1.2.14 Demonstrate an understanding of the times tables for the numbers 0 to 12.		
M.1.2.15 Identify factoring of common numbers (e.g., 12 = 4x3 = 2x6 = 2x2x3).		
M.1.2.16 Divide numbers by 10 and 100 and back-multiply to check results of division.		
M.1.2.17 Identify and demonstrate an understanding of fractional parts including 1/8, 1/4, 1/3, 1/2, and whole.		
M.1.2.18 Demonstrate how fractions relate to multiplication and division.		
M.1.2.19 Add and subtract common fractions with the like denominators.		
M.1.2.20 Identify improper fractions and mixed numbers.		
M.1.2.21 Identify and write amounts of money using decimals, words, and symbols.		
M.1.2.22 Demonstrate an understanding of decimal notation and place value by reading, writing, ordering, and comparing decimals to two decimal places.		
M.1.2.23 Convert and express simple common fractions as decimals.		
M.1.2.24 Show relationship between decimal system and money.		

M.2.2 Measurement	Date	Initials
M.2.2.1 Identify equivalent amounts of money using different bills and coins.		
M.2.2.2 Read, record, and use date concepts (months, days of week) in common formats.		
M.2.2.3 Read, record, and understand time of day.		
M.2.2.4 Telling time to the nearest minute.		
M.2.2.5 Identify halves and whole numbers on a ruler (inches) and develop personal reference point for one's height.		
M.2.2.6 Identify halves and whole numbers on weight scales (pounds) and develop personal reference point for one's weight.		
M.2.2.7 Identify and select appropriate measures for capacity and weight.		
M.2.2.8 Interpret temperature from Fahrenheit scale in various situations, including negative temperatures.		
M.2.2.9 Read and record time of day in 24-hour format.		
M.2.2.10 Convert units of time: hours, minutes, and seconds.		
M.2.2.11 Identify customary US units of linear measurement and equivalents: inches, feet, yards, and miles.		
M.2.2.12 Measure length, width, height, and perimeter in inches, feet, and yards using a ruler or tape measure.		
M.2.2.13 Make rough-estimate approximations of standard US measurements.		
M.2.2.14 Read, interpret, and use map legends/keys.		

Student	Instructor	Date Enrolled

M.3.2 Geometry	Date	Initials
M.3.2.1 Demonstrate an understanding of the concepts of sameness and halfness, i.e., identify and show where line(s) of symmetry (i.e., the lines that divide something into 2 equal parts) falls in two-dimensional figures.		
M.3.2.2 Use the four main compass directions (N, S, E, W) for spatial orientation.		
M.3.2.3 Define and correctly use the concept of horizontal and vertical positions.		
M.3.2.4 Follow a pattern or model to produce or reproduce a shape or object.		

M.4.2 Data Analysis and Probability	Date	Initials
M.4.2.1 Solve problems using simple graphs (pictograph, bar, line, and circle), tables, or distances on maps.		
M.4.2.2 Identify, count, extract, and interpret pertinent data organized in lists, tables, and charts.		
M.4.2.3 Reorient, reorganize, and reformat simple data, i.e., create a table to record and present numerical information.		
M.4.2.4 Collect, label, and order numerical information for a particular purpose (e.g., keep a log, etc.).		
M.4.2.5 Identify and interpret simple graphs, tables, etc.		
M.4.2.6 Read values on and make comparative statements about relative values on a simple bar graph.		
M.4.2.7 Develop an understanding of events as certain, impossible, likely, or unlikely to occur.		
M.4.2.8 Determine the probability of simple events, e.g., in the results of tossing a coin or rolling a die, etc.		

M.5.2 Algebra	Date	Initials
M.5.2.1 Recognize and create simple repeating patterns using three or less items (e.g., color, rhythmic, shape, number, and letter) and identify the unit being repeated.		
M.5.2.2 Identify basic number patterns and relationships inherent in multiplication and division (e.g., identify halves, doubles, and triples of numbers).		
M.5.2.3 Describe qualitative change, i.e., change in the number of daylight hours or temperature over time.		
M.5.2.4 Interpret simple English word phrases, i.e., mathematical expressions, equations, and variables and write algebraic expressions.		
M.5.2.5 Recognize, interpret, and use basic mathematical symbols (+, -, =, <, >) and recognize the different vocabulary used to represent each.		
M.5.2.6 Translate simple mathematical expressions involving +, -, <, and >.		
M.5.2.7 Use a calculator to make basic calculations and solve simple addition, subtraction, multiplication, and division problems and check solutions.		
M.5.2.8 Solve single step, real-life word problems involving addition, subtraction, multiplication, and division using up to two digit whole numbers.		
M.5.2.9 Determine and use appropriate rounding and estimating techniques. Understand that the number "5" rounds up.		

Student	Instructor	Date Enrolled

M.1.3 Number Sense and Operations	Date	Initials
M.1.3.1 Read, write, order, and compare large whole numbers.		
M.1.3.2 Identify place value in large whole numbers and round off large whole numbers to nearest tens, hundreds, thousands, ten-thousands, hundred-thousands, million, etc.		
M.1.3.3 Interpret the inverse relationship between addition and subtraction and multiplication and division.		
M.1.3.4 Demonstrate an understanding of the commutative and associative properties of addition and multiplication.		
M.1.3.5 Demonstrate an understanding of factors of numbers up to 100.		
M.1.3.6 Demonstrate an understanding of dividing by multi-digit numbers and interpreting remainder and expressing them as whole numbers, fractions, and decimals.		
M.1.3.7 Demonstrate an understanding of back-multiplying to check results of division.		
M.1.3.8 Demonstrate an understanding of prime numbers and identify prime numbers up to 20.		
M.1.3.9 Add and subtract whole numbers up to four digits using efficient methods and checking answers.		
M.1.3.10 Multiply with two and three digit numbers using efficient written methods including checking answers.		
M.1.3.11 Identify and calculate equivalent fractions (fourths, thirds, halves, eighths, fifths, and tenths) and simplify fractions to lowest terms.		
M.1.3.12 Convert improper fractions to mixed numbers and mixed numbers to improper fractions.		
M.1.3.13 Add and subtract fractions (fourths, thirds, halves, eighths, fifths, and tenths) using fractions that include like and unlike denominators and whole and mixed numbers.		
M.1.3.14 Multiply and divide by fractions (fourths, thirds, halves, eighths, fifths, and tenths) using fractions that include like and unlike denominators and whole and mixed numbers.		
M.1.3.15 Relate multiplication of fractions and division.		
M.1.3.16 Express a relationship between two quantities as a fraction or fractional estimate.		
M.1.3.17 Identify quantities that are proportional.		
M.1.3.18 Interpret the meaning of ratio and express a relationship between two quantities as a ratio.		
M.1.3.19 Read, write, order, and compare decimals of up to three decimal places.		
M.1.3.20 Identify place value for decimals and round decimals to one or two places or whole numbers.		
M.1.3.21 Compute percentages when part and whole are given using friendly numbers.		
M.1.3.22 Convert decimals to fractions and percents, fractions to decimals and percents, and percents to fractions and decimals.		
M.1.3.23 Add, subtract, multiply, and divide numbers with decimals.		
M.1.3.24 Read and write large numbers with decimals.		
M.1.3.25 Determine a fraction or percent of a decimal.		
M.1.3.26 Understand and interpret the meaning of percent, i.e., percent represents a ratio of a part to a whole where the whole is 100.		
M.1.3.27 Read, write, order, and compare simple percentages.		
M.1.3.28 Find given percents of any given number.		

M.2.3 Measurement	Date	Initials
M.2.3.1 Calculate units of time using a clock (both 12 and 24 hour) and a calendar.		
M.2.3.2 Identify and select appropriate metric measurements.		
M.2.3.3 Add, subtract, multiply, and divide sums of money.		
M.2.3.4 Demonstrate an understanding of the interrelation of distance, time, and speed and make simple calculations using distance, time, and speed formula.		
M.2.3.5 Read and interpret map scales, legends, and mileage tables.		
M.2.3.6 Measure with a standard ruler in inches and feet to 1/16 inch accuracy and a metric ruler in cm and mm.		
M.2.3.7 Make informal comparisons between inches and centimeters including estimating the number of centimeters per inch. Create physical (bodily) benchmarks for units.		

Student	Instructor	Date Enrolled

M.2.3 Measurement, cont.	Date	Initials
M.2.3.8 Convert and calculate with linear measurements (inches, feet, yards, miles) and know the relationship of familiar units and convert units of measure in the same systems.		
M.2.3.9 Use and apply concepts of weight and capacity to solve problems.		
M.2.3.10 Use, read, compare, and calculate with positive and negative Fahrenheit temperatures, i.e., know that temperature increases as it goes up and decreases as it goes down and that the sign of the temperature changes when crossing the zero degree point.		
M.2.3.11 Calculate times using the appropriate value and convert between time formats (including elapsed time), i.e., know equivalencies for hours, seconds, minutes, days, weeks, months, decades, and centuries.		
M.2.3.12 Directly measure perimeter in linear units and area in square units (sq. in., sq. ft., sq. cm.).		
M.2.3.13 Estimate, measure, and compare weights (pounds, ounces) using simple instruments, graduated in familiar units (ounces and pounds) and know when to use appropriate measures.		
M.2.3.14 Convert and calculate using standard US units of weight: tons, pounds, ounces, etc.		
M.2.3.15 Convert and calculate using standard US units of capacity: ounces, quarts, and gallons.		
M.2.3.16 Demonstrate an understanding of the concept of two-dimensional measurements and square units.		
M.2.3.17 Read analog and digital scales on measuring devices including meters, gauges, scales, etc. using various types of units and calibrations.		

M.3.3 Geometry	Date	Initials
M.3.3.1 Recognize, identify, and describe basic geometric shapes (triangle, square, circle, rectangle, hexagon, pentagon, and octagon).		
M.3.3.2 Draw 2-D shapes of specific dimensions.		
M.3.3.3 Use informal visual methods to describe and compare shape, dimension, perimeter, area, angles, and sides in 2-D and 3-D objects.		
M.3.3.4 Identify properties, locations, and functions of right angles, i.e., know that a right angle is 90 degrees or a quarter turn, that two right angles make a straight line, and four right angles fill a space.		
M.3.3.5 Use direction, distance, coordinates, latitude, longitude, simple scales, labels, symbols, and keys to read and use maps and plans.		
M.3.3.6 Use graph paper to draw 2-D shapes in different orientations on a grid.		
M.3.3.7 Calculate the area of squares, rectangles, and triangles and other common figures using given formulas.		
M.3.3.8 Recognize, identify, and describe the properties of common 3-D shapes, i.e., cube, cylinder, and sphere.		
M.3.3.9 Identify triangles based on their properties, i.e., right, isosceles, equilateral, scalene, obtuse, and acute.		
M.3.3.10 Identify common polygons of various shapes, i.e., triangles, quadrilaterals, pentagons, hexagons, and octagons.		
M.3.3.11 Identify parallel, perpendicular, and intersecting lines.		
M.3.3.12 Describe characteristics of angles formed by two intersecting lines, i.e., vertical, supplementary, complementary, adjacent, and corresponding/ congruent.		
M.3.3.13 Identify angles of 90 and 45 degrees, right, acute, and obtuse.		
M.3.3.14 Use the secondary directions for spatial orientation (e.g., NW, SW, NE, SE).		
M.3.3.15 Use a map with a coordinate grid.		
M.3.3.16 Create 3-D objects from 2-D representations.		

Student	Instructor	Date Enrolled

M.4.3 Data Analysis and Probability	Date	Initials
M.4.3.1 Identify, describe, and compare how a change in one variable relates to a change in a second variable.		
M.4.3.2 Demonstrate an understanding of the concept of categories such as shape, size, color, or yes/no responses and know how to count each category for subtotals.		
M.4.3.3 Represent information so that it makes sense to others.		
M.4.3.4 Demonstrate an understanding that when objects or responses are divided into categories, all data must be included in one and only one category; therefore, categories must identify distinct sets.		
M.4.3.5 Demonstrate an understanding of scatter plots, i.e., that each *X* in a line plot represents one and only one item or response; therefore, it is verifiable that the number of responses is equal to the number of *X*'s.		
M.4.3.6 Demonstrate an understanding that a graph is a visual representation and a table arranges information in rows and columns.		
M.4.3.7 Sort graphs and tables by type.		
M.4.3.8 Demonstrate an understanding that lists and tables can be ordered in different ways such as alphabetically, numerically, or randomly.		
M.4.3.9 Compare relative values on a bar graph.		
M.4.3.10 Determine whether or not a graph/table connects to statements made in text using title, data labels, and percent matches.		
M.4.3.11 Support simple statements with data and know statements using "double" and "half" or fifty percent are accurate.		
M.4.3.12 Make observations, draw conclusions, compare, and extract information from bar and circle graphs.		
M.4.3.13 Know that probability is the ratio of the potential successful outcomes to total possibilities and state probability as a ratio in multiple forms (colon, words, and fractions) with simple scenarios.		
M.4.3.14 Determine the probability of basic events and express the likelihood of an occurrence as a ratio, fraction, or percent.		

M.5.3 Algebra	Date	Initials
M.5.3.1 Identify relationships and complete number sequences inherent in the addition and multiplication tables.		
M.5.3.2 Recognize and create repeating patterns and identify the unit being repeated using four or more items.		
M.5.3.3 Demonstrate an understanding that a horizontal number line moves from left to right using lesser to greater values and that intervals on a number line must follow a constant progression by values including negative and positive numbers and common fractions and decimals.		
M.5.3.4 Read and understand positive and negative numbers as showing direction and change on both horizontal and vertical number lines, i.e., demonstrate an understanding that a horizontal number line moves from left to right using lesser to greater values and that a vertical number line moves from the bottom up using lesser to greater values.		
M.5.3.5 Recognize and understand the commutative and associative properties of addition and multiplication by using them to rewrite expressions.		
M.5.3.6 Read, write, and simplify word expressions using algebraic notation for addition, subtraction, multiplication, division, and parentheses.		
M.5.3.7 Demonstrate an understanding that a variable represents a missing value in addition and subtraction expressions, e.g., substitute the value for the variable in one-step expressions using whole numbers when the value is given.		
M.5.3.8 Solve simple one-step equations by recognizing that addition and subtraction are inverse operations and that multiplication and division are inverse operations and knowing the unknown of simple equations can be found by using the inverse of the operation present.		
M.5.3.9 Demonstrate an ability to use the symbols > and < in number statements with larger numbers.		
M.5.3.10 Understand and use exponents to represent repeated multiplication.		

Student	Instructor	Date Enrolled

M.5.3 Algebra, cont.	Date	Initials
M.5.3.11 Read, write, and compute squares and cubes of whole numbers, i.e., $4(4) = 4^2 = 16$ and $2(2)(2) = 2^3 = 8$.		
M.5.3.12 Interpret and solve simple (one or two steps) real-life word problems involving addition, subtraction, multiplication, and division.		
M.5.3.13 Identify and apply simple formulas with one or two arithmetical steps for real-life contexts.		
M.5.3.14 Write an equation representing verbal situations with no more than two operations, i.e., translate simple word problems involving unknown quantities into simple equations.		
M.5.3.15 Develop flexibility in solving problems by selecting strategies, i.e., determine when and how to split a problem into simpler parts to make solving easier.		
M.5.3.16 Compute using the correct order of operations to solve problems including multiplication, division, addition, and subtraction (M, D, A, S).		
M.5.3.17 Apply estimation strategies and mental math to approximate solutions and then use a calculator to calculate solutions to contextual problems containing whole numbers and decimals to two places.		
M.5.3.18 Use the calculator to find squares, square roots, and cubes of whole number quantities, i.e., know the calculator keys that generate squares, square roots, and cubes of numbers.		

Student	Instructor	Date Enrolled

M.1.4 Number Sense and Operations	Date	Initials
M.1.4.1 Carry out calculations using addition, subtraction, multiplication, and division with numbers of any size using efficient written methods including ways to check answers, e.g., approximate calculations, estimation, etc.		
M.1.4.2 Identify the greatest common factor in a given number set.		
M.1.4.3 Identify prime numbers up to 100.		
M.1.4.4 Read, write, order, and compare fractions and mixed numbers.		
M.1.4.5 Recognize and use equivalent forms of common fractions (e.g., 1/2 = 5/10).		
M.1.4.6 Demonstrate an understanding of simple percent increase and decrease.		
M.1.4.7 Round decimals in practical contexts and verbal problems.		
M.1.4.8 Multiply and divide with numbers involving decimals, e.g., 2.5 x 3.6 and 3.2 ÷ .06 with pencil and paper and using the calculator.		
M.1.4.9 Use proportions to solve one-step real-life problems, i.e., involving percents, dimensions, scales, etc.		
M.1.4.10 Recognize and use equivalencies between common fractions, decimals, and percents to find part of whole-number quantities, i.e., know common fraction, decimal, and percent equivalents, e.g., 50% = 1/2 = .5, 25% = .25 = 1/4, .75 = 75% = 3/4.		
M.1.4.11 Compute percents by finding the part, the percent, and the whole.		
M.1.4.12 Use a calculator to calculate efficiently using whole numbers, fractions, decimals, and percents.		

M.2.4 Measurement	Date	Initials
M.2.4.1 Read, measure, estimate, calculate, and compare with and between Fahrenheit and Celsius temperatures using formulas provided.		
M.2.4.2 Measure common three-dimensional shapes (e.g., a room, window, box, etc.) and represent the information as a scale drawing.		
M.2.4.3 Use the language (meters to measure length, grams to measure mass, liters to measure volume) and prefixes (mili, centi, deci, deca, hecto, kilo) of metric units to describe environment.		
M.2.4.4 Make informal comparisons and estimations between grams and ounces, kilograms and pounds, and liters and quarts, i.e., 1 ounce is approximately 29 grams, a paper clip weighs about 1 gram, a kilogram is about 2.2 pounds, and a liter is a little larger than a quart (1.1 qts.).		
M.2.4.5 Calculate volume and surface area of basic cubes, cylinders, and rectangular containers using formulas provided.		
M.2.4.6 Calculate the perimeter and area of basic irregular or composite shapes, i.e., shapes formed by a combination of rectangles and triangles using formulas provided.		
M.2.4.7 Find equivalencies and solve problems using conversions of units of weight, length/width, and capacity.		
M.2.4.8 Interpret, calculate, apply rates, and estimate equivalencies involving time such as velocity (mi/hr, ft/sec, m/sec), frequency (calls/hr), consumption (cal/day, kw/hr), flow (gal/min), change (degrees/min, inches/year), and unit rates (cents/min, $/sq. ft., mi/gal).		
M.2.4.9 Interpret and use scale drawings to solve real-life problems.		
M.2.4.10 Relate the measure of one object to another (e.g., this is about 3 times as long, 6 of these will fit in there) and plan linear spacing in a design (e.g., how many lines of what size can fit on a poster of a certain height?).		

Student	Instructor	Date Enrolled

M.3.4 Geometry	Date	Initials
M.3.4.1 Identify and compare elements of a circle (center, radius, diameter, arc, circumference).		
M.3.4.2 Calculate circumference of a circle using formulas provided.		
M.3.4.3 Understand the relationship of angles when you have a system of parallel lines cut by a transversal.		
M.3.4.4 Show more than one line of symmetry in complex shapes.		
M.3.4.5 Interpret concepts of similarity and identify figures that are similar or congruent.		
M.3.4.6 Demonstrate understanding of the 360–degree system of measuring angles and rotation.		
M.3.4.7 Estimate the measure of an angle, accurately measure an angle using a protractor, and draw angles of specific measures using a protractor and ruler.		
M.3.4.8 Apply the Pythagorean Theorem using simple numbers and basic right triangles.		

M.4.4 Data Analysis and Probability	Date	Initials
M.4.4.1 Develop and draw conclusions from tables and graphs using instructor or student selected information.		
M.4.4.2 Gather data to answer a posed question and analyze and present data visually.		
M.4.4.3 Demonstrate that a table can display the same data as a line or bar graph.		
M.4.4.4 Find the average (mean), median, mode, and range for a data set. Note: it is important for students to recognize that mean and median numbers are considered "averages" and that averages represent numbers typical of the data that can support an argument.		
M.4.4.5 Identify the minimum, maximum, and spread of a data set and describe the effect of spread on mean and median, i.e., know the minimum or maximum value can greatly affect the mean but will not affect the median.		

M.4.4 Data Analysis and Probability, cont.	Date	Initials
M.4.4.6 Demonstrate an understanding of line graphs, i.e., that lines going up mean increase, lines tilting down mean decrease and that they can vary over time, flat lines mean no change, and use specific vocabulary to describe trends, i.e., sharp increase, plummeted, etc.		
M.4.4.7 Know when percent figures don't add up to 100% and when numbers and percent figures (50%, 25%, 10%) don't match up, i.e., understand that circle graphs represent 100%.		
M.4.4.8 Recognize that some visual representations distort actual data (bar widths can provide misleading information) or see where authors of data reports can manipulate data to benefit themselves or malign others in provided materials and know how to recognize who produced a data report and how their interests might affect the report – conflict of interest.		
M.4.4.9 Reorient, reorganize, restate, summarize, or reformat report data (make graphs) for a particular purpose and audience.		
M.4.4.10 Determine and compare probabilities of chance events (e.g., winning lottery prizes).		
M.4.4.11 Calculate the possible combinations (a selection of items where order doesn't matter) of up to five items in simple, practical situations (e.g., I have 4 tickets and 5 potential guests).		
M.4.4.12 Calculate the possible permutations (an arrangement of items/data in a certain order) of up to five elements in simple, practical situations (e.g., ways to sequence titles of 4 different colors in a pattern).		

Student	Instructor	Date Enrolled

M.5.4 Algebra	Date	Initials
M.5.4.1 Identify and use simple formulas from tables with one or two arithmetical steps for real-life contexts.		
M.5.4.2 Use graphs to analyze the nature of changes in quantities in linear relationships and use vocabulary to describe linear change.		
M.5.4.3 Recognize and describe patterns in given sets of numbers in a functional relationship and how changes in one quantity can affect another.		
M.5.4.4 Demonstrate understanding of the Cartesian coordinate system.		
M.5.4.5 Use coordinate grid to identify and locate specific points on the *x*- and *y*-axes.		
M.5.4.6 Graph simple linear equations by generating a table of values from an equation and plotting the coordinates on a graph.		
M.5.4.7 Determine the slope of a line when given two points on the line or the equation of a line and relate it to change.		
M.5.4.8 Write the equation of a simple line when given two points or slope and one point.		
M.5.4.9 Demonstrate an understanding of like terms by combining like terms in simple algebraic expressions.		
M.5.4.10 Demonstrate an understanding of the order of operations and use the order of operations when simplifying algebraic expressions.		
M.5.4.11 Add and subtract integers, i.e., positive and negative numbers.		
M.5.4.12 Multiply and divide integers, i.e., positive and negative numbers.		
M.5.4.13 Calculate square roots of perfect squares, estimate within range of square root value, and demonstrate an understanding of how squaring and taking the square root are related.		
M.5.4.14 Evaluate, add, subtract, multiply, and divide expressions involving exponents.		
M.5.4.15 Demonstrate an understanding of scientific notation, i.e., a shorter way to write large or really small numbers.		
M.5.4.16 Demonstrate an understanding of and solve basic algebraic equations involving multiple steps.		

M.5.4 Algebra, cont.	Date	Initials
M.5.4.17 Translate word phrases into algebraic expressions and vice versa.		
M.5.4.18 Demonstrate an understanding of substituting values into simple formulas and solving for the unknown value.		
M.5.4.19 Demonstrate an understanding of the distributive property, e.g., 75 x 12 = 75 x 10 + 75 x 2 and $2(a + 6) = 2a + 12$		
M.5.4.20 Read, write, order, and compare positive and negative numbers and identify positive and negative numbers on a number line.		
M.5.4.21 Solve real-life, multi-step word problems involving money, measurement, and other contextual situations using whole numbers, decimals, and percents. For example, solve problems relating to payroll deductions, computing and comparing unit pricing, rebates, discounts, deficits, sales taxes, shipping and handling fees, etc.		
M.5.4.22 Recognize and eliminate extraneous information in word problems.		