NeSA Math Indicator Labels
Eleventh Grade 2015
Maco ML-3000

MA 11.2.1.c Classify a function given graphs, tables, or algebraic notation, as linear, quadratic, or neither.

MA 11.2.2.e Evaluate expressions at specified values of their variables (polynomial, rational, radical, and absolute value).

MA 11.1.1.a Compare and contrast subsets of the complex number system, including imaginary, rational, irrational, integers, whole, and natural numbers.

MA 11.2.1.d Identify domain and range of functions represented in either algebraic or graphical form.

MA 11.2.2.f Solve an equation involving several variables for one variable in terms of the others.

MA 11.1.1.b Recognize that closure properties apply to the subsets of the complex number system, under the standard operations.

MA 11.2.1.e Analyze and graph linear functions and inequalities (point-slope form, slope-intercept form, standard form, intercepts, rate of change, parallel and perpendicular lines, vertical and horizontal lines, and inequalities).

MA 11.2.2.g Solve linear and absolute value equations and inequalities.

MA 11.1.1.c Use drawings, words, and symbols to explain the effects of operations such as multiplication and division on the magnitude of quantities in the real number system, including powers and roots (e.g., if you take the square root of a number, will the result always be smaller than the original number?).

MA 11.2.1.f Analyze and graph absolute value functions (finding the vertex, symmetry, transformations, determine intercepts, and minimums or maximums using the piecewise definition).

MA 11.2.2.h Analyze and solve systems of two linear equations and inequalities in two variables algebraically and graphically.

MA 11.1.2.a Compute with subsets of the complex number system, including imaginary, rational, irrational, integers, whole, and natural numbers.

MA 11.2.1.g Analyze and graph quadratic functions (standard form, vertex form, finding zeros, symmetry, transformations, determine intercepts, and minimums or maximums).

MA 11.2.2.i Perform operations (addition subtraction, multiplication, and division) on polynomials.

MA 11.1.2.b Simplify expressions with rational exponents.

MA 11.2.1.h Represent, interpret, and analyze inverses of functions algebraically and graphically.

MA 11.2.2.j Factor polynomials to include factoring out monomial terms and factoring quadratic expressions.

MA 11.1.2.c Select, apply, and explain the method of computation when problem solving using real numbers (e.g., models, mental computation, paper-pencil, or technology).

MA 11.2.2.a Convert equivalent rates (e.g., miles per hour to feet per second).

MA 11.2.2 k. Recognize polynomial multiplication patterns and their related factoring patterns

MA 11.1.2.d Use estimation methods to check the reasonableness of real number computations and decide if the problem calls for an approximation (including appropriate rounding) or an exact number.

MA 11.2.2.b Identify and explain the properties used in solving equations and inequalities.

MA 11.2.2.l Make the connection between the factors of a polynomial and the zeros of a polynomial.

MA 11.2.1.a Define a function and use function notation.

MA 11.2.2.c Simplify algebraic expressions involving integer and fractional exponents.

MA 11.2.2.m Combine functions by composition and perform operations (addition, subtraction, multiplication, division) on functions.

MA 11.2.1.b Analyze a relation to determine if it is a function given graphs, tables, or algebraic notation.

MA 11.2.2.d Perform operations on rational expressions (add, subtract, multiply, divide, and simplify).

MA 11.2.2.n Solve quadratic equations involving real coefficients and real or imaginary roots.

MA 11.2.3.a Analyze, model, and solve real-world problems using various representations (graphs, tables, linear equations and inequalities, systems of linear equations, quadratic, exponential, square root, and absolute value functions).

MA 11.3.1.a Know and use precise definitions of ray, line segment, angle, perpendicular lines, parallel lines, and congruence based on the undefined terms of geometry: point, line and plane.

MA 11.3.1.b Prove geometric theorems about angles, triangles, congruent triangles, similar triangles, parallel lines with transversals, and quadrilaterals using deductive reasoning.

MA 11.3.1.c Apply geometric properties to solve problems involving similar triangles, congruent triangles, quadrilaterals, and other polygons.

MA 11.3.1.d Identify and apply right triangle relationships including sine, cosine, tangent, special right triangles, and the converse of the Pythagorean Theorem.

MA 11.3.1.e Create geometric models to visualize, describe, and solve problems using similar triangles, right triangles, and trigonometry.

MA 11.3.1.f Know and use precise definitions and terminology of circles, including central angle, inscribed angle, arc, intercepted arc, chord, secant, and tangent.

MA 11.3.1.g Apply the properties of central angles, inscribed angles, angles formed by intersecting chords, and angles formed by secants and/or tangents to find the measures of angles related to the circle.

MA 11.3.1.h Sketch, draw, and construct appropriate representations of geometric objects using a variety of tools and methods which may include ruler/straight edge, protractor, compass, reflective devices, paper folding, or dynamic geometric software.

MA 11.3.2.a Derive and apply the midpoint formula.

MA 11.3.2.b Use coordinate geometry to analyze linear relationships to determine if lines are parallel or perpendicular.

MA 11.3.2.c Given a line, write the equation of a line that is parallel or perpendicular to it.

MA 11.3.2.d Derive and apply the distance formula.

MA 11.3.2.e Use coordinate geometry to prove triangles are right, acute, obtuse, isosceles, equilateral, or scalene.

MA 11.3.2.f Use coordinate geometry to prove quadrilaterals are trapezoids, isosceles trapezoids, parallelograms, rectangles, rhombi, kites, or squares.

MA 11.3.2.g Perform and describe positions and orientation of shapes under a single translation using algebraic notation on a coordinate plane.

MA 11.3.2.h Perform and describe positions and orientation of shapes under a rotation about the origin in multiples of 90 degrees using algebraic notation on a coordinate plane.

MA 11.3.2.i Perform and describe positions and orientation of shapes under a reflection across a line using algebraic notation on a coordinate plane.

MA 11.3.2.j Perform and describe positions and orientation of shapes under a single dilation on a coordinate plane.

MA 11.3.2.k Derive the equation of a circle given the radius and the center.

MA 11.3.3.a Convert between various units of length, area, and volume (e.g., such as square feet to square yards).

MA 11.3.3.b Convert between metric and standard units of measurement.

MA 11.3.3.c Apply the effect of a scale factor to determine the length, area, and volume of similar two- and three-dimensional shapes and solids.

MA 11.3.3.d Find arc length and area of sectors of a circle.

MA 11.3.3.e Determine surface area and volume of spheres, cones, pyramids, and prisms using formulas and appropriate units.

MA 11.4.1 Representations, No additional indicator(s) at this level. Mastery is expected at previous grade levels.

MA 11.4.2.j Recognize when arguments based on data confuse correlation with causation.

MA 11.4.2.a Identify and compute measures of central tendency (mean, median, mode) when provided data both with and without technology.

MA 11.4.2.k Interpret data represented by the normal distribution, formulate conclusions, and recognize that some data sets are not normally distributed.

MA 11.4.2.b Explain how transformations of data, including outliers, affect measures of central tendency.

MA 11.4.3.a Construct sample spaces and probability distributions.

MA 11.4.2.c Compare data sets and formulate conclusions.

MA 11.4.3.b Use appropriate counting techniques to determine the probability of an event.

MA 11.4.2.d Support conclusions with valid arguments.

MA 11.4.3.c Determine if events are mutually exclusive and calculate their probabilities in either case.

MA 11.4.2.e Develop linear equations for linear models to predict unobserved outcomes using the regression line and correlation coefficient with technology.

MA 11.4.2.f Describe the shape, identify any outliers, and determine the spread of a data set.

MA 11.4.2.g Explain the impact of sampling methods, bias, and the phrasing of questions asked during data collection, and the conclusions that can rightfully be made.

MA 11.4.2.h Explain the differences between a randomized experiment and observational studies.

MA 11.4.2.i Using scatter plots, analyze patterns and describe relationships in paired data.