Student Personal Learning Goals – AZ High School Math aligned with ACT Math assessment

Number and Quantity

Emerging (1)	Developing (2)	Proficient (3)	Distinguished (4)
	All skills in Emerging level of understanding	**All skills in Developing level of understanding**	**All skills in Developing level of understanding and Proficient level of understanding**
I can apply the order of operations .	I can use simple sequences of operations to determine if a solution is an appropriate representation for the given context (e.g., place value estimation, combining like terms, and changing fractions to common denominators).	I can estimate, apply, and calculate a sequence of operations using irrational and rational numbers (e.g., negative integers, radicals, exponents, and fractions).	I can interpret and solve multipart problems and problems with sophisticated contexts. *May be beyond Algebra 2 standards and may align to Precalculus and Plus standards.
I can apply context to round up or down as appropriate for a given situation.		I can determine reasonable solutions to routine problems and interpret those problems in context by applying patterns, ratios, and proportions to solve for missing information.	I can apply proportional reasoning to complex, abstract situations .
I can use ratios and conversions.		I can work on problems in context after interpreting numerical relationships and their properties from context and using that to express the relationship.	I can find solutions to complex problems that require multiple steps and operations. I can apply this knowledge to determine an appropriate solution within a context.
I can identify equivalent numerical expressions, including those with whole number exponents, radicals, and scientific notation.			I can convert units within a problem and use rational, irrational, and complex number systems and their properties to represent solutions. I can work with abstract calculations while adjusting parameters in order to perform those calculations.

I can design, set up, and solve a proportion (including unit conversions) to determine a solution.			I can work with values that involve radicals, rational exponents, scientific notation, unit conversions, absolute value, and extended ratios.
			I can flexibly interpret varied numerical relationship, notation. And key characteristics to apply them to sequences of calculations with problems that have rich context or high levels of abstraction.
			I can extend my work to topics such as vector operations and matrices.

Algebra

Emerging (1)	Developing (2)	Proficient (3)	Distinguished (4)
	All skills in Emerging level of understanding	**All skills in Developing level of understanding**	**All skills in Developing level of understanding and Proficient level of understanding**
I can solve a sequence of operations to find a solution to a contextual problem and determine an appropriate solution.	I can identify a linear inequality in one variable that models a function.	I can interpret the structure of an expression.	I can create a linear equation from a context involving profit and loss.
I can identify equivalent expressions using exponent properties.		I can solve inequalities in one variable.	I can perform operations involving scientific notation, polynomial expressions, and rational expressions.
I can use substitution with whole numbers to evaluate a variety of expressions, including quadratic.		I can solve a literal equation for a specific variable.	I can extend my knowledge of equivalent expressions to both rational and absolute value expressions.
I can solve linear equations in one variable with integer coefficients, including those utilizing the distributive property.		I can solve a quadratic equation in a variety of ways.	I can add rational expressions with unlike denominators and determine if a rational expression is undefined at a particular value of x.
		I can use the zeros of a quadratic to identify the corresponding graph.	I can factor a quadratic equation and then use the solutions to complete additional parts of the problem.
		I can explain the steps in solving any equation and justify their solution method.	I can identify the equation of a quadratic relation given the vertex and x-intercept.

		I can evaluate absolute value expressions given an integer value.	I can identify the relationship between the zeros and factors of higher order polynomials.
		I can determine if an equation or system of equations has no real solutions.	I have a deep understanding of proportional relationships and can use that understanding to solve problems using ratios.
		I can identify the slope of a line from an equation.	I can use a system of equations to solve problems with geometric shapes in the coordinate plane.
		I can identify the graphs corresponding to equations and inequalities in two variables.	I can solve problems with conic sections that include identifying equations and key features.
		I can solve a system of equations, including those with a context.	
		I can determine if a situation has constraints and if solutions are nonviable.	

Functions

Emerging (1)	Developing (2)	Proficient (3)	Distinguished (4)
	All skills in Emerging level of understanding	**All skills in Developing level of understanding**	**All skills in Developing level of understanding and Proficient level of understanding**
I can interpret and evaluate a function for a given integer input.	I can find the next few terms from a sequence in and out of context.	I can represent, interpret, and solve problems in and out of context involving linear functions and systems of linear functions with information coming from context, graphs, and tables.	I can interpret and solve multipart problems and problems with sophisticated context. *These problems may be beyond Algebra 2 and may be aligned to Precalculus and Plus standards.
I can identify the key features of a function, (e.g., slope, average rate of change, horizontal or vertical shift, and zeros of a function) from an equation, graph, or table.		I can use relationships between slopes and intercepts to build linear functions with specific properties (e.g., parallel, and perpendicular lines)›	I can flexibly interpret varied relationships, notation. Equations, and key characteristics of functions in order to apply them to a sequence of calculations with problems that have a rich context of high levels of abstraction.
		I can understand coordinate quantities and rates (including slope) and their application to linear and quadratic relationships in context, graphically, and out of context.	I van interpret many functions, describing the nature of the function (including end behavior), its attributes and features, its solutions, and its constraints. *The various functions include: linear functions (including unit rate and slope); quadratic functions (including zeros); rational and radical functions with regards to graphs (including asymptotes), expressions and equations; trigonometric functions with regards to relationships and identities; piecewise functions from

			context and from the coordinate plane, including evaluating; exponential functions with regard to sequences, properties, and logarithms; and conic sections with regard to equations and graphs.
		I can recognize equivalent representations of polynomial functions and their features.	I can interpret sequences and series using equations and expressions involving subscripts.
		I can evaluate functions, interpret, and use function notation, and interpret sequences (recursive and explicit) and series to solve problems.	I can describe sequences algebraically, interpreting them from context and applying the interpretation to solve nonroutine problems.
		I can relate an angle measure to the ratios sine, cosine, and tangent as well as use the inverse function to solve problems.	I can build and compose functions of many types and perform operations with those functions.
		I can compare functions (linear, quadratic, and exponential) and their properties represented in different ways.	I can perform transformations on functions.

Geometry

Emerging (1)	Developing (2)	Proficient (3)	Distinguished (4)
	All skills in Emerging level of understanding	**All skills in Developing level of understanding**	**All skills in Developing level of understanding and Proficient level of understanding**
I can read and interpret various diagrams, figures, and notations.		I can apply transformations, including similarity and congruence correspondence within geometric figures.	I can interpret and solve multipart problems and problems with sophisticated context.
I can identify parts of congruent figures from a congruence statement and identify coordinates after a simple transformation.		I can identify transformations (including sequences of transformations) that create images and use theorems.	I can interact with geometric figures (including circles) involving area (including sectors), perimeter, and volume of multipart contextual problems as well as abstract problems.
I can use geometric formulas to find area or volume when values are given directly for all needed measures.		I can recognize and apply geometric theorems (including congruence and similarity) with regards to triangles, area, volume, density, and right triangle trigonometry in and out of context	I can interpret and convert these measures (including degrees and radians) from algebraic relationships and functions in order to use the formulas and find missing dimensions.
I know precise geometric definitions in order to interpret and work with figures.		I can use the Pythagorean theorem in and out of context to solve for triangle unknowns, along with additional formulas and mathematical relationships	I am knowledgeable in right triangle similarity and trigonometric ratios and can apply trigonometry to non-right triangles, including the law of sines, the law of cosines, and the area of a triangle.
		I can apply a sequence of operations, often including fractional values, proportions, and ratios, after interpreting algebraic and geometric relationships	I can determine geometric measurements from properties of composite figures and can determine missing values from given properties that are related to the figure.
		I can identify a coordinate value from context, without visual cues.	I can strategically employ geometric properties and theorems to interpret and understand problems, (e.g., lines, angles, triangles, circles, polygons, etc.).

		I can use the coordinate plane to solve problems involving midpoint, distance, linear functions, quadrilaterals, and segments.	
		I can use relationships between slopes and intercepts to build linear functions with specified properties (e.g., parallel, and perpendicular lines).	
		I can interpret and apply angle relationships formed by parallel lines, as well as interpret and apply geometric measurement to simple and composite figures with various unknowns	
		I can solve geometric measurement problems with given lengths	
		I can interpret geometric symbology and can use it to solve problems.	
		I can use geometric relationships (like vertical angles and the measures of interior angles) to solve problems in context and on the coordinate grid	
		I can make and analyze geometric constructions with a variety of tools.	
		I can construct, interpret, and use relationships within circles and use circle attributes (e.g., angles, segments, chords, etc.) to solve problems or to solve for missing measures.	
		I can identify and create the equation of a circle given the	

		necessary information and should analyze the relationship between two-dimensional cross-sections and three-dimensional figures.	

Statistics and Probability

Emerging (1)	Developing (2)	Proficient (3)	Distinguished (4)
	All skills in Emerging level of understanding	**All skills in Developing level of understanding**	**All skills in Developing level of understanding and Proficient level of understanding**
I can determine information from visual stimuli and contextual situations with statistics and probability.		I can interpret and solve survey and sample problems in context, applying them to the population.	I can interpret and solve multipart problems and problems with sophisticated contexts
I can read, interpret, and use various diagrams (including Venn diagrams) and charts (including charts with counts, frequencies, and percentages)		I can interpret the sample space (including a sample space that is not obvious) of complex probability problems to answer questions of likelihood	I can analyze information in order to determine the best fit (e.g., with linear and nonlinear relationships).
I can find the probability of simple and compound events to determine an outcome and determine how many combinations a sample space can create.		I can interpret problems, with or without diagrams (including histograms), charts, or graphs, using probability and statistics to calculate values in different contexts.	I can flexibly interpret probabilities and data in order to apply them to sequences of formulas, properties, and calculations with problems that have rich statistical context or high levels of abstraction
I can Calculate statistical measures and apply information from a sample to estimate the proportional population response.		I can interpret and express constraints and relationships and calculate statistical measures and find data values given the statistical measures.	I can use conditional probability, including permutations and combinations with a given situation.
		I can account for the effect of outliers within a data set and analyze information to determine the best fit (e.g., with linear relationships).	I can interpret and use an understanding of events (e.g., compound, mutually exclusive, and independent) and consider them in terms of sets and subsets.

		I can analyze relationships with respect to residuals and correlation and should be able to interpret a situation to distinguish between causation and correlation.	I can interpret and infer from data the probabilities and measures with data displays in context and can use multiple points of data to model variations of rate of change.
			I can solve problems that require converting units and using decimals and percentages to find statistical measures (including measures of spread and center).
			I can interpret, explain, find, and use statistical measures from graphs, tables, lists, and context for multipart and nonroutine problems (including weighted averages)
			I can use increasing levels of skills to solve problems, and I recognize that using frequency tables appropriately for probability or statistical measures is important.