



North Carolina Essential Standards Advanced Functions and Modeling (AFM)

Note on Numbering: **N**–Number and Operations, **A**–Algebra, **G**–Geometry, **M**–Measurement, **S**–Statistics and Probability and **D**–Discrete Mathematics

Algebra

	Essential Standard	Clarifying Objectives	
AFM.A.1	Use a diverse array of functions (logarithmic, piecewise-defined, power, trigonometric, recursively-defined and polynomial) to model and solve problems.	AFM.A.1.1	Evaluate the appropriate use of each function.
		AFM.A.1.2	Explain the significance each function has with respect to the data or problem situation being modeled.
AFM.A.2	Use multiple representations to analyze trigonometric functions.	AFM.A.2.1	Use the unit circle to generate trigonometric functions.
		AFM.A.2.2	Analyze transformations with respect to period, amplitude and vertical and horizontal shifts.
		AFM.A.2.3	Apply the law of sines and the law of cosines to solve problems.

Statistics and Probability

	Essential Standard	Clarifying Objectives	
AFM.S.1	Construct models (including calculator-generated models of linear, polynomial, exponential, trigonometric, power and logarithmic functions) of bivariate data to solve problems.	AFM.S.1.1	Interpret the constants, coefficients and bases in the context of the data.
		AFM.S.1.2	Evaluate models for goodness-of-fit; use the most appropriate model to draw conclusions and make predictions.
		AFM.S.1.3	Evaluate sets of data considering the source and the design of the study.
		AFM.S.1.4	Identify when arguments based on data confuse correlation with causation.
AFM.S.2	Analyze univariate data to solve problems.	AFM.S.2.1	Apply methods of data collection.
		AFM.S.2.2	Apply statistical principles and methods in sample surveys.
		AFM.S.2.3	Use the normal distribution curve.

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	Essential Standard	Clarifying Objectives	
		AFM.S.2.4	Interpret graphical displays of univariate data.
		AFM.S.2.5	Compare distributions of univariate data.
AFM.S.3	Use theoretical and experimental probability to model and solve problems.	AFM.S.3.1	Use addition and multiplication principles.
		AFM.S.3.2	Calculate permutations and combinations.
		AFM.S.3.3	Generate simulations of probability models.
		AFM.S.3.4	Calculate expected values and determine fairness.
		AFM.S.3.5	Apply discrete random variables to solve problems.
		AFM.S.3.6	Apply the Binomial Theorem.