

OCS Math 3 Priority Standards

ALGEBRA	
NC.M3.A-APR.3	Understand the relationship among factors of a polynomial expression, the solutions of a polynomial equation and the zeros of a polynomial function.
NC.M3.A-APR.7	Understand the similarities between arithmetic with rational expressions and arithmetic with rational numbers.
NC.M3.A-CED.2	Create and graph equations in two variables to represent absolute value, polynomial, exponential and rational relationships between quantities.
NC.M3.A-REI.11	Extend an understanding that the x -coordinates of the points where the graphs of two equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$ and approximate solutions using a graphing technology or successive approximations with a table of values.
FUNCTIONS	
NC.M3.F-IF.4	Interpret key features of graphs, tables, and verbal descriptions in context to describe functions that arise in applications relating two quantities to include periodicity and discontinuities.
NC.M3.F-IF.7	Analyze piecewise, absolute value, polynomials, exponential, rational, and trigonometric functions (sine and cosine) using different representations to show key features of the graph, by hand in simple cases and using technology for more complicated cases, including: domain and range; intercepts; intervals where the function is increasing, decreasing, positive, or negative; rate of change; relative maximums and minimums; symmetries; end behavior; period; and discontinuities.
NC.M3.F-BF.1	Write a function that describes a relationship between two quantities. <ol style="list-style-type: none"> a. Build polynomial and exponential functions with real solution(s) given a graph, a description of a relationship, or ordered pairs (include reading these from a table). b. Build a new function, in terms of a context, by combining standard function types using arithmetic operations.
NC.M3.F-BF.3	Extend an understanding of the effects on the graphical and tabular representations of a function when replacing $f(x)$ with $k \cdot f(x)$, $f(x) + k$, $f(x + k)$ to include $f(k \cdot x)$ for specific values of k (both positive and negative).
NC.M3.F-BF.4	Find an inverse function. <ol style="list-style-type: none"> a. Understand the inverse relationship between exponential and logarithmic, quadratic and square root, and linear to linear functions and use this relationship to solve problems using tables, graphs, and equations. b. Determine if an inverse function exists by analyzing tables, graphs, and equations.
NC.M3.F-TF.2	Build an understanding of trigonometric functions by using tables, graphs and technology to represent the cosine and sine functions.
GEOMETRY	
NC.M3.G-CO.14	Apply properties, definitions, and theorems of two-dimensional figures to prove geometric theorems and solve problems.
NC.M3.G-C.5	Using similarity, demonstrate that the length of an arc, s , for a given central angle is proportional to the radius, r , of the circle. Define radian measure of the central angle as the ratio of the length of the arc to the radius of the circle, s/r . Find arc lengths and areas of sectors of circles.
NC.M3.G-MG.1	Apply geometric concepts in modeling situations <ul style="list-style-type: none"> • Use geometric and algebraic concepts to solve problems in modeling situations: • Use geometric shapes, their measures, and their properties, to model real-life objects. • Use geometric formulas and algebraic functions to model relationships. • Apply concepts of density based on area and volume. • Apply geometric concepts to solve design and optimization problems.
STATISTICS & PROBABILITY	
NC.M3.S-IC.4	Use simulation to understand how samples can be used to estimate a population mean or proportion and how to determine a margin of error for the estimate.