North Carolina Department of Public Instruction
INSTRUCTIONAL SUPPORT TOOLS
FOR ACHIEVING NEW STANDARDS

NC Math 4 ● Glossary of Terms

For the new Standard Course of Study that will be effective in all North Carolina schools in the 2020-21 School Year.

This document is designed to help North Carolina educators teach **NC Math 4** Standard Course of Study. NCDPI staff are continually updating and improving these tools to better serve teachers and districts.

What is the purpose of this tool?
This tool provides educators with terminologies that represent the concepts and ideas teachers need to know and understand in order to effectively teach the North Carolina Standard Course of Study and use supporting materials. The Glossary of Terms is not meant to be exhaustive, but seeks to address critical terms and definitions essential in building content knowledge and understanding but also in promoting consistency across disciplines, increased student outcomes, and improved parent communication. This is a living document and will undergo revision and additions in terms over time.

How do I send Feedback?
We intend the explanations and examples in this document to be helpful and specific. That said, we believe that as this document is used, educators will find ways in which the tool can be improved and made even more useful. If there are terms which are either omitted or which you feel are misrepresented in this glossary, please send feedback by completing the Feedback on Mathematic Support Documents form.

Where are the standards and unpacking documents for the North Carolina Standard Course of Study for mathematics?
All standards are located at https://www.dpi.nc.gov/teach-nc/curriculum-instruction/standard-course-study/mathematics

Glossary by Objective

Number and Quantity		
Objective	Word	Definition
NC.M4.N.2.1	Matrix	A rectangular array of elements organized in rows and columns.
NC.M4.N.2.2	Vector	A quantity having both magnitude and direction; which can be represented by a directed line segment whose length is the magnitude and an arrow indicating direction.

Algebra and Functions		
Objective	Word	Definition
NC.M4.AF.1.1 NC.M4.AF.1.2	Composition of functions	The combining of functions in a way such that the output of one function is used as the input for another function. We write $f(g(x))$ **OR** $f \circ g(x)$, and read as "f of g of x" **OR** "f composed with g at x".
NC.M4.AF.2.1	Reciprocal identities	A set of equations involving based on the six trigonometric functions.

Reciprocal Identities		
$sin\ \Theta\ = \frac{1}{csc\ \theta}$	$cos\ \Theta\ = \frac{1}{sec\ \theta}$	$tan\ \Theta\ = \frac{1}{cot\ \theta}$
$csc\ \Theta\ = \frac{1}{sin\ \theta}$	$sec\ \Theta\ = \frac{1}{cos\ \theta}$	$cot\ \Theta\ = \frac{1}{tan\ \theta}$
$sin\ \theta \cdot csc\ \theta = 1$	$cos\ \theta \cdot sec\ \theta = 1$	$tan\ \theta \cdot cot\ \theta = 1$

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<tr><td></td><td>Pythagorean identities</td><td>A set of equations involving trigonometric functions based on the right triangle properties.
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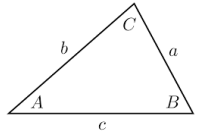
<tr><td rowspan="2">NC.M4.AF.2.2</td><td>Law of Sines</td><td>The Law of Sines represents the ratios between the sides and angles of non-right triangles. Given a triangle where the corresponding side to each angle is opposite the specified angle (see figure on the right), the ratios of the sine of each angle to the length of the opposite side will always be equal in any oblique triangle. Therefore, $\frac{sin\,A}{a} = \frac{sin\,B}{b} = \frac{sin\,C}{c}$.
  </td></tr>
<tr><td>Law of Cosines</td><td>A generalized form of the Pythagorean Theorem that defines the relationship between angle measures and side lengths in non-right triangles; $a^2 = c^2 + b^2 - 2bc \cdot cos\,(A); b^2 = a^2 + c^2 - 2ac \cdot cos\,(B); c^2 = a^2 + b^2 - 2ab \cdot cos\,(C)$</td></tr>
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Statistics and Probability		
Objective	Word	Definition
NC.M4.SP.1.2	Comparative experiment	Experimental design where samples have been exposed to at least two treatments or conditions and then compared to each other.
NC.M4.SP.1.4	Data visualizations	Graphic representations of data.
NC.M4.SP.2.1	Sampling distribution	A probability distribution of a statistic that shows how the statistic varies if all possible samples of the same size are taken from the population or if the process of sampling is repeated multiple times.

NC.M4.SP.2.2	Confidence intervals	A statistical inference method for determining the true value of a parameter; it is the probability that a population parameter will fall between a set of values, the interval, a certain proportion of times; a wider range describes more confidence.
NC.M4.SP.2.3	One proportion z-test	A statistical inference method, known as a test of significance, used to compare an observed proportion to an expected proportion, when there are only two categories.
NC.M4.SP.3.1	Discrete probability distribution	A probability distribution that lists each occurrence of a random variable with a countable number of outcomes and their probabilities of occurrence. **Value of** X | x_1 | x_2 | x_3 | x_4 | x_k **Probability** | P_1 | P_2 | P_3 | P_4 | P_k
NC.M4.SP.3.2	Binomial distribution	A distribution with two possible outcomes, often referred to as a success or failure.
NC.M4.SP.3.3	Normal distribution	A continuous probability distribution where the area under the curve defines the probability above or below a random variable X; the probability at any value of X is equal to 0.

Glossary Listed Alphabetically

Word	Definition
Binomial distribution	A distribution with two possible outcomes, often referred to as a success or failure.
Comparative experiment	Experimental design where samples have been exposed to at least two treatments or conditions and then compared to each other.
Composition of functions	The combining of functions in a way such that the output of one function is used as the input for another function. We write $f(g(x))$ **OR** $f \circ g(x)$, and read as "f of g of x" **OR** "f composed with $g$at$x$".
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 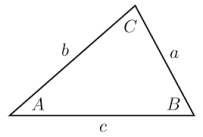 </td></tr>
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