

New York Curriculum Matrix for Mathematics

New York Mathematics Strands/Bands/ Performance Indicators Integrated Algebra	Common Core Mathematics Domains/Clusters High School	National Essential Skills Study (NESS) National Rankings Rank	NESS	NY Regents Exam	Priority
Problem Solving Strand					
<i>Students will new mathematical knowledge through problem solving.</i>					
A.PS.1 Use a variety of problem solving strategies to understand new mathematical content	<p><u>Number & Quantity: Quantities</u> Reason quantitatively and use units to solve problems. 1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.</p> <p><u>Algebra: Reasoning with Equations & Inequalities</u> Solve equations and inequalities in one variable. 3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. 4. Solve quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.</p>	M10	H	H	H

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A.PS.1 (Continued from previous page)	(Continued from previous page) Functions: Interpreting Functions Interpret functions that arise in applications in terms of the context. 6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.					
A.RP.8 Support an argument by using a systematic approach to test more than one case	<i>There is no New York Mathematics Performance Indicator–Common Core alignment.</i>	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.	H	H	H
A.N.2 Simplify radical terms (no variable in the radicand)	Number & Quantity: The Real Number System Extend the properties of exponents to rational exponents. 2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.	M20	Understand and apply the basic properties and laws of exponents and scientific notation to solve problems, including those with fractional, negative, and zero exponents.	M	H	H
		M29	Factor a composite number into its prime components and use least common denominators or least common multiples to solve equations.			
		M33	Perform operations with radicals, such as addition, subtraction, and multiplication.			

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A.N.8 Determine the number of possible arrangements (permutations) of a list of items	<p><u>Statistics & Probability: Conditional Probability & the Rules of Probability</u> Use the rules of probability to compute probabilities of compound events in a uniform probability model.</p> <p>9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.</p>	M51	Determine combinations (the various groupings a set may be arranged in without regard to order) and permutations (arrangements of a set where order matters).	L	H	M
A.A.1 Translate a quantitative verbal phrase into an algebraic expression	<p><u>Algebra: Creating Equations</u> Create equations that describe numbers or relationships.</p> <p>1. Create equations and inequalities in one variable and use them to solve problems. <i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions.</i></p> <p>2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.</p> <p><u>Functions: Building Functions</u> Build a function that models a relationship between two quantities.</p> <p>1. Write a function that describes a relationship between two quantities.</p> <p>a. Determine an explicit expression, a recursive process, or steps for calculation from a context.</p>	M11	Apply variables in expressions and equations to solve problems (i.e., write mathematical equations for given situation, create a mathematical model to understand the relationships between variables, or make connections between the structures of mathematically abstract concepts and the real world).	H	H	H

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A.A.1 (Continued from previous page)	<p>(Continued from previous page)</p> <p>b. Combine standard function types using arithmetic operations. <i>For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.</i></p> <p>2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.</p>					
A.A.2 Write a verbal expression that matches a given mathematical expression	<p><i>There is no New York Mathematics Performance Indicator–Common Core alignment.</i></p>	M11	Apply variables in expressions and equations to solve problems (i.e., write mathematical equations for given situation, create a mathematical model to understand the relationships between variables, or make connections between the structures of mathematically abstract concepts and the real world).	H	H	H