NYS

		NYS Plus Mathematics Learning Standards		
		Number and Quantity The Complex Number System - (CN)		
	Standard Code	Current Standard	Revised Standard Recommendation for 2018	Additional Information/Notes
Cluster	B. Represent complex numbers and their operations on the w5 72(oer)]T			

		NYS Plus Mathematics Learning Standards		
		Number and Quantity The Complex Number System – (N-CN)		
		Standard Code	Current Standard	Revised Standard Recommendation for 2018-19	Additional Information/Notes
Cluster	C. Use complex numbers in polynomial identities and equations.	N-CN.C.8+	Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.	NO CHANGE.	
		N-CN.C.9+			

NYS Plus Mathematics Learning Standards			
Number and Quantity Vector and Matrix Quantities (NVM)			
	Standard Code	Current Standard	Revised Standard Recommendation for 2019	Additional Information/Notes
Cluster	B. Perform operations on vectors.			

		Standard Code	Current Standard	Revised Standard Recommendation for 2018-19	Additional Information/Notes
			NYS Plus Mathematics Learning Standards		
			Number and Quantity **Vector and Matrix Quantities (N-VM)**		
Cluster	B. Perform operations on vectors.	N-VM.B.5+	Multiply a vector by a scalar.	Multiply a vector by a scalar analytically and geometrically.	Used clean and concise language
		N-VM.B.5a+	Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.	REMOVE STANDARD	By adding analytically and geometrically in previous standard N-VM.B.5+
		N-VM.B.5b+	Compute the magnitude of a scalar multiple cv using $\|cv\| = \|c\|v$. Compute the direction of cv knowing that when $\|c\|v \neq 0$, the direction of cv is either along v (for c > 0) or against v (for c < 0).	REMOVE STANDARD	By adding analytically and geometrically in previous standard N-VM.B.5+

		NYS Plus Mathematics Learning Standards		
		Number and Quantity Vector and Matrix Quantities (N-VM)		
		Standard Code	Current Standard	Revised Standard Recommendation for 2018	Additional Information/Notes

		Standard Code	Current Standard	Revised Standard Recommendation for 2018	Additional Information/Notes
Cluster	C. Perform operations on matrices and use matrices in applications.	N-VM.C.6+	Use matrices to represent and manipulate data, e to represent payoffs or incidence relationships in a network.	Use matrices to represent and model real world situations. For example networks.	"Data" is too vague and gaming implies gambling.
		N-VM.C.7+	Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a gam are doubled.	Multiply matrices by scalars.	Used clear and concise language.
		N-VM.C.8+	Add, subtract, and multiply matrices of appropriate dimensions.	Add, subtract, and multiply matrices.	Used clear and concise language.
		N-VM.C.9+	Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.	Determine if matrices are a group under addition an multiplication.	Had been formally named as a concept (2005 AN1 standards) Use concise, mathematical language where appropriate.
		N-VM.C.10+	Understand that the zero and identity matrices play a role in matrix addition and multiplication similar t the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.	REMOVE STANDARD	Standard is redundant with rewording of NVM.C.9+
		N-VM.C.11+	Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.	Use matrices to perform linear transformations in the plane. For example multiplying a vector by 2x2 matrix.	Used clear and concise language.
		N-VM.C.12+	Work with 2 × 2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.	Calculate and interpret the determinant of a matrix. For example: calculating area	Used clear and concise language.

	NYS Plus Mathematics Learning Standards			
	Algebra Arithmetic with Polynomials and Rational Expressions (A-APR)			
	Standard Code	Current Standard	Revised Standard Recommendation for 2018	Additional Information/Notes
Cluster D. Rewrite rational expressions.	A-APR.D.7+	Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.	NO CHANGE.	

	NYS Plus Mathematics Learning Standards	
	Algebra Reasoning with Equations and Inequalities (A-REI)	
Standard Code	Current Standard	Revised Standard Recommendation for 2018	Additional Information/Notes

NYS Plus Mathematics Learning Standards				
Functions Building Functions (+BF)				
		Standard Code	Current Standard	Revised Standard Recommendation for 2018	Additional Information/Notes
Cluster	A. Build a function that models a relationship between two quantities.	F-BF.A.1c+	Compose functions. For example, if T(y) is the temperature in the atmosphere as a function of height, and h(t) is the height of a weather balloon a function of time, then T(h(t)) is the temperature the location of the weather balloon as a function of time.	NO CHANGE.	

		NYS Plus Mathematics Learning Standards		
		Functions Building Functions (F-BF)		
	Standard Code	Current Standard	Revised Standard Recommendation for 2018-19	Additional Information/Notes
Cluster	B. Build new functions from existing functions.	F-BF.B.3+	ADDITION Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values		

			NYS Plus Mathematics Learning Standards		
			Functions Trigonometric Functions (F-TF)		
		Standard Code	Current Standard	Revised Standard Recommendation for 2018-19	Additional Information/Notes
Cluster	A. Extend the domain of trigonometric functions using the unit circle.	F-TF.A.3+	Use special triangles to determine geometrically the values of sine, cosine, tangent for π/3, π/4 and π/6, and use the unit circle to express the values of sine, cosine, and tangent for π−x, π+x, and 2π−x in terms of their values for x, where x is any real number.	Move standard to Geometry (limited to degrees and quadrants 1 and 2 on the unit circle). The rest of the standard is removed.	Since we are including the Laws of Sines and Cosines in Geometry to include all triangles (instead of limited to right triangles), we need to address using trigonometric ratios of obtuse angles. It's also a logical introduction of the unit circle, which is built upon in Algebra II in F.TF.2. The angles are specified here to restrict angle measurement to degrees, and to focus on the special triangles for the introduction of the unit circle.
		F-TF.A.4+	Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.		

Submit comments on the draft NYS P-8 Mathematics Learning Standards

NYS Plus Mathematics Learning Standards		
Geometry		
Similarity, Right Triangles and Trigonometry-(G-SRT)		
Standard Code	Current Standard	Additional Information/Notes

	Standard Code	Current Standard	Revised Standard Recommendation for 2018	Additional Information/Notes
	NYS Plus Mathematics Learning Standards			
	Geometry Expressing Geometric Properties with Equations (G-GPE)			
Cluster				

NYS Plus Mathematics Learning Standards

Geometry
Geometric Measurement and Dimension (GMD)

Standard Code	Current Standard	Revised Standard Recommendation for 2018

NYS Plus Mathematics Learning Standards

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