Unit 5: Matrices

Next Unit: Conics

Key Vocabulary
Determinant
Dimensions or Order of a Matrix
Identity Matrix
Inverse Matrices
Matrix
Scalar
Square Matrix
Zero Matrix

Standard	
MGSE9-12.N.VM.6	Use matrices to represent and manipulate data, e.g., triansformations of vectors
MGSE9-12.N.VM.7	Multiply matrices by scalars to produce new matrices
MGSE9-12.N.VM.8	Add subtract, and multiply matrices of appropriate dimensions
MGSE9-12.N.VM.9	Understand that, unlike multiplication of numbers, matrix ultiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties
MGSE9-12.N.VM.10	Understand that the zeero and identity matrices play a role in matrix addition and multiplication similar to 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
MGSE9-12.N.VM.12	Work with 2X2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area
MGSE9-12.REI.8	Represent a system of linear equations as a single matrix equation in a vector variable
MGSE9-12.REI.9	Find the inverse of a matrix if it exists and use it to solve systems of linear equations

Learning Target		
1	**MGSE9-12.N.VM.6**	I can represent and manipulate data using matrices
2	**MGSE9-12.N.VM.6**	I can define the order of a matrix as the number of rows by the number of columns
3	**MGSE9-12.N.VM.8**	I can add and subtract matrices and know these operations are possible only when the dimensions are equal
4	**MGSE9-12.N.VM.8**	I can recognize that matrix addition and subtraction are commutative
5	**MGSE9-12.N.VM.7**	I can multiply matrices by a scalar and understand the distributive and associative properties apply to matrices
6	**MGSE9-12.N.VM.8**	I can multiply matrices and know when the operation is defined
7	**MGSE9-12.N.VM.9**	I can recognize that matrix multiplication is not commutative
8	**MGSE9-12.N.VM.10**	I can understand and apply the peroperties of a zero matrix
9	**MGSE9-12.N.VM.10**	I can understand and apply the properties of an identity matrix
10	**MGSE9-12.N.VM.10**	I can find the determinant of a square matrix and understand that it is a nonzero value if and only if the matrix has an inverse
11	**MGSE9-12.N.VM.12**	I can use 2X2 matrices as transformations of a plane and determine the area of the plane using the determinant
12	*MGSE9-12.REI.8/9*	*I can write a system of linear equations as a matrix equation and use the inverse of the coefficiant matrix to solve the system*
13	*MGSE9-12.N.VM.6*	*I can write and use vertex-edge graphs to solve problems*

Unit 5 Calendar (A Days)				
Professional Work Day	1/4 **Target 1**		1/6 **Target 2**	
1/10 **Target 3 & 4**		1/12 **Target 5**		1/14 **ZAP & Quiz 1**
MLK Day		1/19 **Target 6**		1/21 **Target 6 & 7**
	1/25 **Target 8 & 9**		1/27 **Review Targets 6-9**	
1/31 **ZAP & Quiz 2**		2/2 **Target 10**		2/4 **Target 10**
	2/8 **Target 11**		2/10 **Target 11**	
2/14 **Review Targets 10-11**		2/16 **Performance Task**	Winter Break	Winter Break
Winter Break		2/23 **Performance Task**		2/25 Performance Task
	3/1 **Performance Task**		3/3 **Review Unit**	
3/7 **Review Unit**		3/9 **Unit 5 Exam**		*Bonus ZAP Day*