

**Accelerated Pre-Calculus Teaching & Learning Framework**

Semester 1					Semester 2					
Unit 1 3 weeks	Unit 2 4 weeks	Unit 3 4 weeks	Unit 4 4 weeks	Unit 5 3 weeks	Unit 6 2 weeks	Unit 7 4 weeks	Unit 8 2 weeks	Unit 9 4 weeks	*Unit 10 3 weeks	*Unit 11 3 weeks
Matrices	Conics	Introduction to Trigonometric Functions	Trigonometric Functions	Trigonometric Identities	Trigonometry of General Triangles	Vectors	Probability	Inferences and Conclusions from Data	Polar & Parametric Structure	Sequences & Series Review
<p><b>MGSE9-12.N.VM.6</b> (Use matrices for data)</p> <p><b>MGSE9-12.N.VM.7</b> (Multiply matrices)</p> <p><b>MGSE9-12.N.VM.8</b> (Add, subtract &amp; multiply matrices)</p> <p><b>MGSE9-12.N.VM.9</b> (Properties &amp; multiplication of matrices)</p> <p><b>MGSE9-12.N.VM.10</b> (Zero &amp; identity matrices)</p> <p><b>MGSE9-12.N.VM.12</b> (2x2 matrices &amp; transformations)</p> <p><b>MGSE9-12.A.REI.8</b> (Systems &amp; matrices)</p> <p><b>MGSE9-12.A.REI.9</b> (Inverse of a matrix)</p>	<p><b>MGSE9-12.G.GPE.2</b> (Derive the equation of a parabola)</p> <p><b>MGSE9-12.G.GPE.3</b> (Derive the equations of ellipses &amp; hyperbolas)</p> <p><b>MGSE9-12.A.REI.7</b> (Solve a system of linear &amp; quadratic equations)</p>	<p><b>MGSE9-12.F.IF.4</b> (Multiple representations with characteristics &amp; key features)</p> <p><b>MGSE9-12.F.IF.7</b> (Algebraic to graphs)</p> <p><b>MGSE9-12.F.IF.7e</b> (Graph trig. functions)</p> <p><b>MGSE9-12.F.TF.1</b> (Radian measures)</p> <p><b>MGSE9-12.F.TF.2</b> (Unit circle)</p> <p><b>MGSE9-12.F.TF.5</b> (Periodic phenomena)</p> <p><b>MGSE9-12.F.TF.8</b> (Pythagorean identity)</p>	<p><b>MGSE9-12.F.BF.4</b> (Inverse functions)</p> <p><b>MGSE9-12.F.BF.4d</b> (Invertible functions)</p> <p><b>MGSE9-12.F.TF.3</b> (Sine, cosine &amp; tangent)</p> <p><b>MGSE9-12.F.TF.4</b> (Symmetry &amp; periodicity)</p> <p><b>MGSE9-12.F.TF.6</b> (Restricted domain)</p> <p><b>MGSE9-12.F.TF.7</b> (Inverse functions &amp; modeling)</p>	<p><b>MGSE9-12.F.TF.9</b> (Prove addition, subtraction, double and half-angle formulas)</p> <p><b>MGSE9-12.F.TF.8</b> (Pythagorean identity)</p> <p><b>MGSE9-12.F.TF.4</b> (Symmetry &amp; periodicity)</p> <p><b>*CSE9-12.A.REI.1</b> (Solve Trigonometric Equations)</p>	<p><b>MGSE9-12.G.SRT.9</b> (Derive the area of a triangle)</p> <p><b>MGSE9-12.G.SRT.1</b> 0 (Prove Laws of Sines &amp; Cosines)</p> <p><b>MGSE9-12.G.SRT.1</b> 1 (Apply Laws of Sines &amp; Cosines)</p>	<p><b>MGSE9-12.N.CN.3</b> (Conjugates of complex numbers)</p> <p><b>MGSE9-12.N.CN.4</b> (Complex #'s on complex planes)</p> <p><b>MGSE9-12.N.CN.5</b> (Addition, subtraction, multiplication &amp; conjugation of complex #'s geometrically)</p> <p><b>MGSE9-12.N.CN.6</b> (Distance in the complex plane)</p> <p><b>MGSE9-12.N.VM.1</b> (Magnitude &amp; direction)</p> <p><b>MGSE9-12.N.VM.2</b> (Components of a vector)</p> <p><b>MGSE9-12.N.VM.3</b> (Velocity)</p> <p><b>MGSE9-12.N.VM.4,a,b,c</b> (Addition &amp; subtraction)</p> <p><b>MGSE9-12.N.VM.5,a,b</b> (Scalar multiplication using vectors &amp; compute the magnitude)</p> <p><b>MGSE9-12.N.VM.11</b> (Multiple a vector by a matrix)</p>	<p><b>MGSE9-12.S.CP.8</b> (General multiplication rule)</p> <p><b>MGSE9-12.S.CP.9</b> (Permutations &amp; Combinations)</p> <p><b>MGSE9-12.S.MD.1</b> (Graph probability distributions)</p> <p><b>MGSE9-12.S.MD.2</b> (Calculate the expected value)</p> <p><b>MGSE9-12.S.MD.3</b> (Develop a probability distribution-theoretical)</p> <p><b>MGSE9-12.S.MD.4</b> (Develop a probability distribution-empirically-expected value)</p> <p><b>MGSE9-12.S.MD.5,a,b</b> (Expected values &amp; expected payoff)</p> <p><b>MGSE9-12.S.MD.6</b> (Fair decisions)</p> <p><b>MGSE9-12.S.MD.7</b> (Probability concepts)</p>	<p><b>MGSE9-12.S.ID.2</b> (Shape &amp; data distribution)</p> <p><b>MGSE9-12.S.ID.4</b> (Fit to a normal distribution)</p> <p><b>MGSE9-12.S.IC.1</b> (Inferences from a random sample)</p> <p><b>MGSE9-12.S.IC.2</b> (Using simulations)</p> <p><b>MGSE9-12.S.IC.3</b> (Randomization)</p> <p><b>MGSE9-12.S.IC.4</b> (Population mean)</p> <p><b>MGSE9-12.S.IC.5</b> (Compare 2 treatments)</p> <p><b>MGSE9-12.S.IC.6</b> (Evaluate reports based on data)</p>	<p><b>CSE9-12.N.CN.1 a-b</b> (complex numbers in polar form)</p> <p><b>CSE9-12.F.POL.1 a-e</b> (understand &amp; explore the polar coordinate plane)</p> <p><b>CSE9-12.F.POL.2 a-e</b> (explore &amp; use parametric equations)</p>	<p><b>CSE9-12.N.SEQ.1 a-i</b> (recognize, formulate, &amp; use sequence and series)</p> <p><b>Review: All standards by differentiating for student needs</b></p>

These units were written to build upon concepts from prior units, so later units contain tasks that depend upon the concepts addressed in earlier units. All units will include the Mathematical Practices and indicate skills to maintain

## Cobb County School District 2020-21

**NOTE:** Mathematical standards are interwoven and should be addressed throughout the year in as many different units and topics as possible in order to stress the natural connections that exist among mathematical topics. \*denotes enrichment standards in preparation for AP Calculus

**Grades 9-12 Key: Algebra Strand:** SSE = Seeing Structure in Expressions, APR = Arithmetic with Polynomial and Rational Expressions, CED = Creating Equations, REI = Reasoning with Equations and Inequalities

**Functions Strand:** IF = Interpreting Functions, LE = Linear and Exponential Models, BF = Building Functions, TF = Trigonometric Functions

**Geometry Strand:** CO = Congruence, SRT = Similarity, Right Triangles, and Trigonometry, C = Circles, GPE = Expressing Geometric Properties with Equations, GMD = Geometric Measurement and Dimension, MG = Modeling with Geometry

**Statistics and Probability Strand:** ID = Interpreting Categorical and Quantitative Data, IC = Making Inferences and Justifying Conclusions, CP = Conditional Probability and the Rules of Probability, MD = Using Probability to Make Decisions

CSE=Cobb Standards of Excellence

## Accelerated Pre-Calculus Teaching & Learning Framework

### Block Schedule

Unit 1 1.5 weeks	Unit 2 2 weeks	Unit 3 2 weeks	Unit 4 2 weeks	Unit 5 1.5 weeks	Unit 6 1 weeks	Unit 7 2 weeks	Unit 8 1 weeks	Unit 9 2 weeks	*Unit 10 1.5 weeks	*Unit 11 1.5 weeks
<b>Matrices</b>	<b>Conics</b>	<b>Introduction to Trigonometric Functions</b>	<b>Trigonometric Functions</b>	<b>Trigonometric Identities</b>	<b>Trigonometry of General Triangles</b>	<b>Vectors</b>	<b>Probability</b>	<b>Inferences and Conclusions from Data</b>	<b>Polar &amp; Parametric Structure</b>	<b>Sequences &amp; Series Review</b>
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