

Pre-Calculus Teaching & Learning Framework

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

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: CSE-Cobb Standards of Excellence

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,

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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

Pre-Calculus Teaching & Learning Framework

Block Schedule

Unit 1 2 weeks	Unit 2 2.5 weeks	Unit 3 2.5 weeks	Unit 4 2 weeks	Unit 5 1.5 weeks	Unit 6 2 weeks	Unit 7 2 weeks	Unit 8 1.5 weeks	Unit 9 2 weeks
Matrices	Conics	Introduction to Trigonometric Functions	Trigonometric Functions	Trigonometric Identities	Trigonometry of General Triangles	Vectors	Probability	*Sequences & Series Review
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