

UNIT Title/Focus	Introduction to Algebra 3 and Review of Previous Algebra		TIME OF YEAR/LENGTH (E.G. Oct-Nov/3 weeks)	September – Late October / 7 Weeks	
DRIVING QUESTION(S)	How does what we’ve learned in previous Algebra courses relate to what we’re going to do in both Algebra 3 and Trigonometry? Am I (the student) prepared for the rigors of the content that is covered in Algebra 3?				
CONTENT VOCABULARY	Function, Domain, Range, Linear, Quadratic, Polynomial, Coefficient, Even Function, Odd Function, Composition, Piecewise Function, Inverse Function, One-to-one				
TOPIC	ELIGIBLE CONTENT/ STANDARDS	OBJECTIVES		ASSESSMENT	RESOURCES
1.1 Linear Functions	CC.2.2.HS.D.1, CC.2.2.HS.D.2, CC.2.2.HS.D.4, CC.2.2.HS.D.7-10	Write, interpret, sketch, analyze, and model linear relationships. Write and sketch equations of parallel and perpendicular lines.		Quiz 1.1. Worksheet on sketching 24 linear functions.	Textbook and TI-84 Calculators
1.2 Relations and Functions	CC.2.2.HS.C.1-6	State whether or not a relation is a function. Understand the importance of domain and range. Find the domain of a function. Evaluate a function at a given value.		Quiz 1.2.	Textbook and TI-84 Calculators
1.3 Graphs of a Function	CC.2.2.HS.C.2-3	Understand components of an equation; graph analysis (increasing, decreasing, max and min, even and odd), piecewise functions		Quiz 1.3. Even / Odd project, and Piecewise function project.	Textbook and TI-84 Calculators
1.4 Transformations and Parent Functions	CC.2.3.HS.A.2, CC.2.2.HS.C.4, CC.2.2.HS.C.6	Sketch parent functions and understand common transformations (both input and output).		Quiz 1.4.	Textbook and TI-84 Calculators

SASD Curriculum Map**Content Area: _Mathematics****Course: _Algebra 3 / Trigonometry**

UNIT Title/Focus	Introduction to Algebra 3 and Review of Previous Algebra Cont.		TIME OF YEAR/LENGTH (E.G. Oct-Nov/3 weeks)	September – Late October / 7 Weeks	
TOPIC	ELIGIBLE CONTENT/ STANDARDS	OBJECTIVES		ASSESSMENT	RESOURCES
1.5 Combination of Functions	CC.2.2.HS.C.1-4	Perform arithmetic combination of functions, compose functions. Understand domain and range within the context of composition.		Quiz 1.5.	Textbook and TI-84 Calculators
1.6 Inverse Functions	CC.2.2.HS.C.4	Find the inverse of a function (if it exists), as well as state applicable restrictions of an inverse. Verify two functions are inverses of one another through composition as well as graphically		Quiz 1.6. Test Chapter 1.1 to 1.6	Textbook and TI-84 Calculators

SASD Curriculum Map**Content Area: _Mathematics****Course: _Algebra 3 / Trigonometry**

UNIT Title/Focus	Polynomial Function (quadratic and higher degree)	TIME OF YEAR/LENGTH (E.G. Oct-Nov/3 weeks)	Late October – Mid November / 2 – 3 Weeks	
DRIVING QUESTION(S)	How do polynomial functions relate to real world situations? How can characteristics of polynomial functions (real zeros, leading coefficient test, y-intercept, parents functions, transformations) help me (the student) with more complex topics in Algebra 3 and Trigonometry?			
CONTENT VOCABULARY	Quadratic Function, Polynomial Function, Vertex Form, Completing the Square, Max and Mins, Continuous, Leading Coefficient Test, Real Zeros, Imaginary Zeros, Repeated Roots, Intermediate Value Theorem			
TOPIC	ELIGIBLE CONTENT/ STANDARDS	OBJECTIVES	ASSESSMENT	RESOURCES
2.1 Quadratic Functions	CC.2.2.HS.D.3-5, CC.2.2.HS.D.7,	Understand the form and characteristics of a polynomial function, sketch and interpret a polynomial function including; vertex, direction, zeros, and y-intercept. Write a quadratic equation given a vertex and a point. Model a real world situation / event that follows a quadratic.	Quiz 2.1.	Textbook and TI-84 Calculators
2.2 Polynomial Functions of a Higher Degree	CC.2.2.HS.C.4-5, CC.2.2.HS.D.3-5	Grasp properties of all polynomial functions (continuous and differentiable). Transform parent functions. Apply the leading coefficient test to polynomial functions. Factor polynomials to find real and imaginary zeros. Provide a basic sketch of a polynomial using zeros, y-intercept, and the LCT and IVT.	Quiz 2.2. Test Chapter 2.	Textbook and TI-84 Calculators

UNIT Title/Focus	Trigonometric Functions and Angles		TIME OF YEAR/LENGTH (E.G. Oct-Nov/3 weeks)	Mid November – Late January / 9 Weeks
DRIVING QUESTION(S)	How can angles be measured? How do Geometry and Trigonometry overlap? How can trigonometric functions (and inverse trigonometric functions) be used to solve real world problems? What are the advantages of knowing and understanding the unit circle? How does graphing trigonometric functions tie in with previously learned function transformations?			
CONTENT VOCABULARY	Angle (initial and terminal side), Coterminal, Degrees, Radians, Linear and Angular Speed, Unit Circle, Cosine, Sine, Tangent, Secant, Cosecant, Cotangent, Reference Angle, Periodic, Pythagorean Theorem, Amplitude			
TOPIC	ELIGIBLE CONTENT/ STANDARDS	OBJECTIVES	ASSESSMENT	RESOURCES
4.1 Radian and Degree Measure	CC.2.2.HS.C.7 CC.2.3.HS.A.9	Understand rotations and measurements of a central angle in both degrees and radians. Find coterminal values in both degrees and radians. Calculate both angular and linear speed.	Quiz 4.1.	Textbook and TI-84 Calculators
4.2 The Unit Circle	CC.2.3.HS.A.7, CC.2.2.HS.C.7, CC.2.2.HS.C.9	Create the unit circle from scratch. Understand how to find all values of the six trig functions on the unit circle (along with coterminals). Calculate trig functions of any angle using a calculator.	Quiz 4.2.	Textbook, the Unit Circle, and TI-84 Calculators
4.3 Right Triangle Trigonometry	CC.2.3.HS.A.7, CC.2.2.HS.C.4, CC.2.2.HS.C.7, CC.2.2.HS.C.9	Extend the use of trigonometric functions from the unit circle to any right triangle. Find solutions using angle values on the unit circle as well as values from a calculator. Understand the use of an inverse trig function.	Quiz 4.3. Right Angle Trigonometry Packet.	Textbook, the Unit Circle, and TI-84 Calculators
4.4 Trigonometric Functions of any Angle	CC.2.2.HS.C.7-9	Find values of the six trig functions using both right triangles and the coordinate plane. Find and use reference angles to help in calculations. Understand the quadrant restrictions of the six trig functions, as well as domain restrictions	Quiz 4.4. Test Chapter 4 (first half).	Textbook, the Unit Circle, and TI-84 Calculators

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TOPIC	ELIGIBLE CONTENT/ STANDARDS	OBJECTIVES	ASSESSMENT	RESOURCES
4.5 Sketching Cosine and Sine Curves	CC.2.3.HS.A.2, CC.2.2.HS.C.7-8	Sketch both sine and cosine curves using common function transformations from both parent functions and point transformations. Know and use the “standard” five points for each function.	Quiz 4.5. Real world object project.	Textbook, the Unit Circle, and TI-84 Calculators
4.6 Sketching Secant	CC.2.2.HS.C.7-8	Sketch the remaining four trig functions (Secant, Cosecant, Tangent, Cotangent) using common function transformations from both parent functions and point transformations. Know and use the “standard” five points for each function.	Quiz 4.6.	Textbook, the Unit Circle, and TI-84 Calculators
4.7 Inverse Trigonometric Functions	CC.2.2.HS.C.7-8	Investigate and understand the use and restrictions of the inverse of all six trig functions including domain and range. Use reference angles to find all angles that are potential solutions to trig functions. Solve real world problems	Quiz 4.7. Test Chapter 4.5 to 4.7 (second half)	Textbook, the Unit Circle, and TI-84 Calculators

UNIT Title/Focus	Analytic Trigonometry and Additional Topics		TIME OF YEAR/LENGTH (E.G. Oct-Nov/3 weeks)	Late January – Early April / 9 Weeks	
DRIVING QUESTION(S)	How can basic trigonometric concepts be broadened into solving equations? How can fundamental, sum and difference, double, half-angle, and power-reducing identities be applied to solving equations and prove further identities?				
CONTENT VOCABULARY	Reciprocal Identities, Quotient Identities, Pythagorean Identities, Cofunction Identities, Even/Odd Identities, Trigonometric Proof, Restricted Solutions, General Solutions, Sum and Difference Identities, Double Angle Identities, Half-Angle Identities, Power-Reducing Identities.				
TOPIC	ELIGIBLE CONTENT/ STANDARDS	OBJECTIVES	ASSESSMENT	RESOURCES	
5.3 Solving Trigonometric Equations	CC.2.3.HS.A.7 CC.2.2.HS.C.2, CC.2.2.HS.C.4, CC.2.2.HS.C.6-9, CC.2.2.HS.D.8-10	Use standard algebraic techniques to solve trigonometric equations. Solve trig equations in quadratic form. Solve trig equations involving multiple angles. Use inverse trig functions to solve non-unit circle values.	Quiz 5.3 (first one).	Textbook and TI-84 Calculators	
5.1 and 5.2 Using and Verifying Trigonometric Identities	CC.2.2.HS.C.2, CC.2.2.HS.C.9	Recognize and write the fundamental identities. Use the identities to evaluate trig functions, simplify trig expressions, and rewrite trig expressions. Verify trig identities.	Quiz 5.2 and 5.3 (second one). Test 5.1 to 5.3	Textbook and TI-84 Calculators	
5.4 and 5.5 Sum and Difference Identities, Multiple Angle Identities	CC.2.2.HS.C.2, CC.2.2.HS.C.9	Use sum and difference identities to evaluate trig functions, verify identities, and solve trig equations. Use multiple-angle, half-angle, and power-reducing formulas to rewrite and evaluate trig functions.	Quiz 5.4 and 5.5.	Textbook and TI-84 Calculator	
6.1 and 6.2 Laws of Sines and Cosines	CC.2.2.HS.C.4 CC.2.2.HS.D.2, CC.2.2.HS.D.8	Use the Law of Sines to solve oblique triangles (AAS or ASA). Use the Law of Sines to solve oblique triangles with the ambiguous case (ASS).	Quiz 6.1 and 6.2. Test 5.1 to 6.2	Textbook and TI-84 Calculator	

UNIT Title/Focus	Polynomial and Rational Functions		TIME OF YEAR/LENGTH (E.G. Oct-Nov/3 weeks)	Early April – Early May / 4 Weeks	
DRIVING QUESTION(S)	How can I represent real world scenarios with either polynomial or rational functions? How can I represent these functions in graphical form? What strategies can I use to factor functions and find real / imaginary zeros?				
CONTENT VOCABULARY	Polynomial Functions, Real Zeros, Long Division of Polynomials, Imaginary Zeros, Fundamental Theorem of Algebra, Rational Functions, Horizontal and Vertical Asymptotes.				
TOPIC	ELIGIBLE CONTENT/ STANDARDS	OBJECTIVES	ASSESSMENT	RESOURCES	
2.3 Long Division of Polynomials.	CC.2.2.HS.D.3-5 CC.2.2.HS.C.2, CC.2.2.HS.C.5	Use long division to divide polynomials by other polynomials. Use synthetic division. Use rational zero test to test for and find possible zeros.	Quiz 2.3.	Textbook and TI-84 Calculators	
2.5 The Fundamental Theorem of Algebra	CC.2.2.HS.D.3-5 CC.2.2.HS.C.2, CC.2.2.HS.C.5	Use the Fundamental Theorem of Algebra to determine the number of zeros of a polynomial function. Find all zeros (including complex) of polynomials. Find zeros by factoring and long division.	Quiz 2.5.	Textbook and TI-84 Calculators	
2.6 and 2.7 Graphs of Rational Functions and Asymptotes	CC.2.2.HS.D.6-7 CC.2.2.HS.C.2, CC.2.2.HS.C.6	Find the domains of rational functions. Find horizontal and vertical asymptotes. Model real world problems with rational functions. Analyze and sketch rational functions.	Quiz 2.6 and 2.7. Test 2.3 to 2.7	Textbook and TI-84 Calculators	

UNIT Title/Focus	Exponential and Logarithmic Functions		TIME OF YEAR/LENGTH (E.G. Oct-Nov/3 weeks)	Early May – Early June / 3-4 Weeks	
DRIVING QUESTION(S)	What are the relationships among exponential and logarithmic functions? How can logarithmic functions be evaluated, rewritten, and solved?				
CONTENT VOCABULARY	Transcendental Functions, Exponential Functions, Logarithmic Functions, Natural Logarithm, Change-of-Base Formulas.				
TOPIC	ELIGIBLE CONTENT/ STANDARDS	OBJECTIVES	ASSESSMENT	RESOURCES	
3.1 Exponential Functions	CC.2.2.HS.D.1 CC.2.2.HS.C.2, CC.2.2.HS.C.5-6	Recognize and evaluate exponential functions. Graph exponentials. Evaluate and graph with base e. Model and solve real life problems with populations and compound interest.		Textbook and TI-84 Calculators	
3.2 Logarithmic Functions and Graphs	CC.2.1.HS.F.1, CC.2.2.HS.C.1, CC.2.2.HS.C.4-6	Recognize and evaluate logarithmic functions with base a. Graph logarithms, Use logarithms to model problems	Quiz 3.1 and 3.2	Textbook and TI-84 Calculators	
3.3 and 3.4 Properties of Logarithms and Solving Exponential / Logarithmic Equations	CC.2.2.HS.C.5 CC.2.1.HS.F.1, CC.2.2.HS.D.8-10	Rewrite logarithms with different bases. Use properties to rewrite expressions. Expand or condense expressions. Solve both simple and complex exponential and logarithmic equations.	Quiz 3.3 and 3.4	Textbook and TI-84 Calculators	