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| **Grade: High School Algebra 2 Content Area Mathematics**  |
| **Instructor Note: Standards 17, 18, and 23 – 35 include all ways to model functions and will be covered throughout many different units of instruction.** |
| **Timeline** | **Cluster** | **College and Career Readiness Standards** | **Student I Can Statement(s) / Learning Target(s)** | **Academic Vocabulary** | **Assessments** | **Notes / Self - Reflection** |
| First Half | Trigonometric Functions | Standards 19 – 22 | Extending the domain of trigonometric functions using the unit circle.Model periodic phenomenon with trigonometric functions.Prove and apply trigonometric identities. | DomainRangeFunctionUnit CircleRadianArcUnit CircleAmplitudeFrequencyMidlinePythagorean Identities | Star BenchmarkTeacher created formative and summative assessmentOngoing informal assessmentPerformance based assessment |  |
| First Half | Complex Number System | Standards 1 - 5 | Perform arithmetic operations with complex numbers.Solve quadratic equations that have complex solutions.Extend polynomial identities to complex numbersShow how the fundamental theorem of algebra relates to quadratic functions. | icomplex numberfundamental theorem of algebra | Star BenchmarkTeacher created formative and summative assessmentOngoing informal assessmentPerformance based assessment |  |
| First Half | Polynomial Functions | Standards 6 – 13 | Interpret the structure of expressionsPerform arithmetic operations of polynomialsUnderstand relationship between zeros and factors.Model polynomials with tables, equations, and graphs. | FactorTermDegreeZeroRootSolutionMaximumMinimumEnd BehaviorMultiplicityPolynomial Long DivisionSynthetic DivisionRational Root Theorem | Star BenchmarkTeacher created formative and summative assessmentOngoing informal assessmentPerformance based assessment |  |
| Second Half | Radical Functions | Standard 16 | Solve radical functionsModel radical functions with tables, equations, graphs, and as inverses to polynomial functions.Demonstrate how extraneous solutions may arise in this process. | Radical FunctionExtraneous solutionInverseDomain restrictions | Star BenchmarkTeacher created formative and summative assessmentOngoing informal assessmentPerformance based assessment |  |
| Second Half | Rational Functions | Standards 14-16 | Rewriting rational expression using inspection and long division.Model radical functions with tables, equations, and graphs. | NumeratorDenominatorRemainderCommon FactorsAsymptotesHoles | Star BenchmarkTeacher created formative and summative assessmentOngoing informal assessmentPerformance based assessment |  |
| Second Half | Logarithm FunctionsInstructor Note:This unit can be included to extend to more complex situations as needed for an honors course. | Standard 36 | Converting exponential to logarithms.Evaluate logarithms using technology.Compare and contrast the basic properties of logarithms with the properties of exponents.Model logarithmic functions with tables, equations, graphs, and as the inverse of exponential functions. | LogarithmArgumentBaseCommon LogNatural LogChange of Base | Star BenchmarkTeacher created formative and summative assessmentOngoing informal assessmentPerformance based assessment |  |
| Second Half | Inferences and Conclusions from Data | Standards 37 - 45 | Summarize, represent, and interpret data on a single count or measurement variable.Understand and evaluate random processes underlying statistical experiments.Use probability to evaluate outcomes of decisions. | Normal DistributionInferenceSimulationRandomizationTheoretical and Empirical ProbabilityStatistical SignificanceFair decisions | Star BenchmarkTeacher created formative and summative assessmentOngoing informal assessmentPerformance based assessment |  |