

# **HONORS PRE-CALCULUS SYLLABUS**

## **2017-2018 Academic School-Year**

### **1<sup>st</sup> Marking Period – Unit 1**

Review Algebra Concepts – 2 Days Review, 1 Day Quiz

#### **Chapter 1: Functions and Their Graphs (Test 1.2 – 1.6)**

1.2 Functions (NJSLS-A-CED.A.2, NJSLS-A-CED.A.4, NJSLS-F-IF.A.1-2, NJSLS-F-IF.B.5-6, NJSLS-F-LE.B.5)

1.3 Graphs of Functions (Piecewise & Step Functions) (NJSLS-A-REI.D.10, NJSLS-F-IF.B.4, NJSLS-F-IF.C.7, NJSLS-F-IF.C.7b)

1.4 Shifting, Reflecting and Stretching Graphs (NJSLS-F-BF.B.3)

1.5. Combinations of Functions (NJSLS-F-BF.A.1, NJSLS-F-BF.A.1b, NJSLS-F-BF.A.1c)

1.6 Inverse Functions (Inverses Algebraically, No One-to-One) (NJSLS-F-BF.B.4, NJSLS-F-BF.B.4a-4d)

#### **Chapter 2: Polynomial and Rational Functions (Test 2.2 – 2.5)**

2.2 Polynomial Functions of Higher Degree (NJSLS-A-SSE.A.2, A-APR.B.3, F-IF.C.7, F-IF.C.7c)

2.4 Complex Numbers (not in-depth, just review) (NJSLS-N-CN.A.1, 2, 3, N-CN.C.7, AS-REI.B.4b)

2.5 The Fundamental Theorem of Algebra (NJSLS-N-CN.C.7, 9)

#### **Chapter 2: Polynomial and Rational Functions (Test 2.6 – 2.7)**

2.6 Rational Functions and Asymptotes (Including Slant Asymptotes) (NJSLS-A-SSE.A.1, 1b, AS-CED.A.2)

2.7 Graphs of Rational Functions (NJSLS-F-IF.C.7, 7d)

### **2<sup>nd</sup> Marking Period – Unit 2**

#### **Chapter 3: Exponential and Logarithmic Functions (Test 3.1 – 3.4)**

3.1 Exponential Functions and Their Graphs (NJSLS-A-SSE.B.3c, F-IF.C.7e, F-IF.C.8b, F-LE.B.5)

3.2 Logarithmic Functions and Their Graphs (NJSLS.HSF-IF.C.7e)

3.3 Properties of Logarithms (NJSLS-A-SSE.A.1, A-SSE.B.3c)

3.4 Solving Exponential and Logarithmic Equations (NJSLS-F-IF.C.8b, F-BF.B.4, F-BF.B.5, F-LE.A.1c)

**\*Use 3.5 Exponential and Logarithmic Models to Supplement Word Problems**

#### **Chapter 4:** Trigonometric Function (Test 4.1 – 4.4)

- 4.1 Radian and Degree Measure (NJSLS-TF.A.1, NJSLS-G-C.B.5)
- 4.2 Trigonometric Functions: The Unit Circle (NJSLS-F-TF.A.2, NJSLS-F-TF.A.4)
- 4.3 Right Triangle Trigonometry (NJSLS-F-TF..B, NJSLS-G-SRT.C.6, NJSLS-G-SRT.C.8)
- 4.4 Trigonometric Functions of Any Angle (NJSLS-F-TF.A.3, NJSLS-F-TF.C.8)

#### **Chapter 4:** Trigonometric Function (Test 4.5 – 4.6)

- 4.5 Graphs of Sine and Cosine Functions (NJSLS-F-TF.B.5)
- 4.6 Graphs of Other Trigonometric Functions (NJSLS-F-TF.B.5)

### **3<sup>rd</sup> Marking Period – Unit 3**

#### **Chapter 4:** Trigonometric Function (Test 4.7 – 4.8)

- 4.7 Inverse Trigonometric Functions (NJSLS-N-Q.A.1, NJSLS-F-TF.B.6)
- 4.8 Applications and Models (NJSLS-N-Q.A.1, NJSLS-F-TF.B.5, NJSLS-F-TF.B.7)

#### **Chapter 5:** Analytic Trigonometry (Test 5.1 – 5.3)

- 5.1 Using Fundamental Identities (NJSLS-N-Q.A.1, NJSLS-F-TF.B.6, NJSLS-F-TF.C.8)
- 5.2 Verifying Trigonometric Identities (NJSLS-N-Q.A.1, NJSLS-F-TF.B.5, NJSLS-F-TF.B.7, NJSLS-F-TF.C.8)
- 5.3 Solving Trigonometric Equations (NJSLS-F-TF.C.9)

#### **Chapter 5:** Analytic Trigonometry (Test 5.4 – 5.5)

- 5.4 Sum and Difference Formulas (NJSLS-F-TF.C.9)
- 5.5 Multiple Angle and Product Sum Formulas (NJSLS-F-TF.C.9)

### **4<sup>th</sup> Marking Period – Units 4 and 5**

#### **Chapter 6:** Additional Topics and Trigonometry (Test 6.1 – 6.2 and 6.3 – 6.4)

- 6.1 Law of Sines (NJSLS-G-SRT.D.9, 10, 11)
- 6.2 Law of Cosines (NJSLS-SG-SRT.D.10, 11)
- 6.3 Vectors in the Plane (NJSLS-N-VM.A.1, 2, B.4, B.4a)
- 6.4 Vectors and Dot Products (NJSLS-N-VM.B.5b)

**Chapter 9:** Topics in Analytic Geometry (Test 9.5 -9.6)

9.5 Polar Coordinates (NJSLS-F-IF.C.7, F-TF.A.1, F-TF.A.2, F-TF.A.3, F-TF.A.4)

9.6 Graphs of Polar Equations (NJSLS-F-IF.C.7, F-TF.A.1, F-TF.A.2, F-TF.A.3, F-TF.A.4)

**Chapter 11:** Limits and an Introduction to Calculus (Test 11.1-11.4)

11.1 Introduction to Limits (NJSLS-F-BF.B.4d)

11.2 Techniques for Evaluating Limits (NJSLS-F-BF.B.4d)

11.3 The Tangent-Line Problem (NJSLS-F-TF.B.7)

11.4 Limits at Infinity and Limits of Sequences (NJSLS-F-BF.A.1a, c)

## Course Expectations and Skills

- Students are required to have proficiency in all prerequisite topics for Algebra 1, Geometry and Algebra 2. Those who do not demonstrate proficiency will be required to seek additional help after school to close their achievement gap in order to be successful in this course.
- Students are strongly recommended to have a TI-84 Graphing calculator.
- Students are required to participate in both small and large group discussions and activities, as directed.
- Students are required to complete a project each marking period, including those which require the use of technology.
- Students are required to access online materials as warranted by the instructor.

## Resources

Textbook: Precalculus with Limits A Graphing Approach 7e, Larson

Additional Resources: Cengage Web-Based videos and supplements  
Kuta Software  
Boardworks (CCSS PowerPoints)

## Assessment Information

<b>Marking Period 1</b>	<b>Marking Period 2</b>	<b>Marking Period 3</b>	<b>Marking Period 4</b>
Major (MAJ): Summative: 30%	Major (MAJ): Summative: 30%	Major (MAJ): Summative: 30%	Major (MAJ): Summative: 30%
Benchmark (BMK): 20%	Benchmark (BMK): 20%	Benchmark (BMK): 20%	Benchmark (BMK): 20%
Project (PRJ): 10%	Project (PRJ): 10%	Project (PRJ): 10%	Project (PRJ): 10%
Minor (MIN): Formative: 25%	Minor (MIN): Formative: 25%	Minor (MIN): Formative: 25%	Minor (MIN): Formative: 25%
Class Participation (CP): 5%	Class Participation (CP): 5%	Class Participation (CP): 5%	Class Participation (CP): 5%
Homework (HW): 10%	Homework (HW): 10%	Homework (HW): 10%	Homework (HW): 10%