

Paramount Unified School District

Precalculus Honors Year at a Glance

Educational Services

2017-2018

Precalculus Honors – Scope and Sequence

| Fall Semester | | | | | | | Spring Semester | | | |
|---|--|---|---|---|---|---|---|---|--|--|
| Topic 2 18 Days | Topic 3 12 Days | Topic 4 14 Days | | Topic 5 14 Days | Additional Topic | Topic 6 19 Days | Topic 7 14 Days | Topic 8 14 Days | Topic 9 20 Days | |
| Polynomial and Rational Functions | Exponential and Logarithmic Functions | Systems of Equations and Inequalities | | Sequences, Inductions, and Probability | Conic Sections | Trigonometric Functions | Analytic Trigonometry | Additional Topics in Trigonometry | Introduction to Calculus | |
| F-IF 4, 5 | F-IF 4 | A-REI 12 | | F-IF 3 | A-CED 1,2 | F-TF 1 | F-TF 9 | G-SRT 10 | Calc. 1.0 | |
| A-APR 1,2,3 | F-BF 1, 1b | A-CED 2 | | A-APR 5 | A-CED 3,4 | F-TF 2, 2.1 | F-TF 10 | G-SRT 11 | Calc. 2.0 | |
| A-APR 6 | A-SSE 1b, 1c | A-CED 3 | | F-BF 2 | G-GPE 1 | F-TF 3 | | N-VM 1 | Calc. 4.0 | |
| F-IF 7 | A-CED 2 | A-REI 6 | | S-MD 3 | G-GPE 2 | F-TF 4 | | N-VM 2 | | |
| A-CED 1,3 | F-IF 7, 7e | A-REI 7 | | S-CP 2, 3 | G-GPE 3.1 | F-TF 6 | | N-VM 3 | | |
| F-BF 3 | F-IF 8, 9 | N-VM 6 | 5, 10 | S-CP 6 | | F-TF 7 | | N-VM 4 | | |
| N-CN 1,2 | F-LE 4, 4.1 | | | S-CP 9 | | | | N-VM 5 | | |
| N-CN 7 | F-LE 4.2, 4.3 | | | | | | | | | |
| N-CN 3 (+) | F-BF 4 | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Major Clusters | | | | Supporting Clusters | | | Additional Clusters | | | |
| Algebra - Seeing Structure in Expressions (A-SSE) Interpret the structure of expressions. Write expressions in equivalent forms to solve problems. Algebra - Arithmetic with Polynomials and Rational Expressions (A-APR) Perform arithmetic operations on polynomials. Understand the relationship between zeros and factors of polynomials. Algebra - Reasoning with Equations and Inequalities (A-REI) Understand solving equations as a process of reasoning and explain the reasoning Represent and solve equations and inequalities graphically Functions –Interpreting Functions (F-IF) Interpret functions that arise in applications in terms of the context. Functions –Building Functions (F-BF) Build a function that models a relationship between two quantities. Statistics and Probability – Making Inferences and Justifying Conclusions (S-IC) Make inferences and justify conclusions from sample surveys, | | | | Algebra - Antimieta with Polynomials and Rational Expressions (A-APA), Rewrite rational expressions. Algebra - Creating Equations (A-CED) Create equations that describe numbers or relationships. Algebra - Reasoning with Equations and Inequalities (A-REI) Solve equations and inequalities in one variable Functions -Interpreting Functions (F-IF) Analyze functions using different representations. Functions -Linear, Quadratic, and Exponential Models (F-LE) Construct and compare linear, quadratic, and exponential models and solve problems. Statistics and Probability - Interpreting Categorical and Quantitative Data (S-ID) Summarize, represent, and interpret data on a single count or measurement variable. Statistics and Probability - Making Inferences and Justifying Conclusions (S-IC) Understand and evaluate random processes underlying statistical comparents | | | Perform arithmetic operations with complex number System (n-exty) Perform arithmetic operations with complex numbers. Use complex numbers in polynomial identities and equations. Algebra - Arithmetic with Polynomials and Rational Expressions (A-APR) Use polynomial identities to solve problems. Functions - Building Functions (F-BF) Build new functions from exiting functions. Functions - Trigonometric Functions (F-TF) Extend the domain of trigonometric functions using the unit circle. Model periodic phenomena with trigonometric functions. Prove and apply trigonometric identities. Geometry - Expressing Geometric Properties with Equations (G-GPE) Translate between the geometric description and the equation for a conic section. Statistics and Probability - Using Probability to Make Decisions (S-MD) | | | |
| | Topic 2 18 Days Polynomial and Rational Functions F-IF 4, 5 A-APR 1,2,3 A-APR 6 F-IF 7 A-CED 1,3 F-BF 3 N-CN 1,2 N-CN 1,2 N-CN 7 N-CN 3 (+) Major Clu Structure of expression ons in equivalent former etic operations on pur- relationship between solve equations as a pur- solve equations as a pur- solve equations as a pur- solve equations as a pur- solve equations and pur- reting Functions (F-BF) that models a relation bability – Making Inguession as and justify conclusion | Fall SeTopic 2Topic 318 Days12 DaysPolynomial and Rational FunctionsExponential and Logarithmic FunctionsFunctionsFunctionsF-IF 4, 5F-IF 4A-APR 1,2,3F-BF 1, 1bA-APR 6A-SSE 1b, 1cF-IF 7A-CED 2A-CED 1,3F-IF 7, 7eF-BF 3F-IF 8, 9N-CN 1,2F-LE 4, 4.1N-CN 7F-LE 4, 2, 4.3N-CN 3 (+)F-BF 4Major ClustersStructure in Expressions (A-SSE)ructure of expressions. ons in equivalent forms to solve problems. etic with Polynomials and Rational Expression etic operations on polynomials. relationship between zeros and factors of solve equations and inequalities (A-REI) ving equations and inequalities graphically reting Functions (F-IF) ons that arise in applications in terms of the c tog Functions (F-BF) that models a relationship between two qua bability – Making Inferences and Justifying es and justify conclusions from sample survey. | Fall SemesterTopic 2Topic 3Topic18 Days12 Days14 Days12 Days14 DaysPolynomialExponential and LogarithmicSystemand RationalLogarithmicEquationFunctionsFunctionsInequaF-IF 4, 5F-IF 4A-REIA-APR 1,2,3F-BF 1, 1bA-CEIA-APR 6A-SSE 1b, 1cA-CEIA-APR 7A-CED 2A-REIA-CED 1,3F-IF 7, 7eA-REIF-BF 3F-IF 8, 9N-VM 6N-CN 1,2F-LE 4, 4.1InequalN-CN 3 (+)F-BF 4InequalMajor ClustersInequalInequalStructure in Expressions (A-SSE)Auructure of expressions.Inequalructure of expressions.Inequalities (A-REI)ving equations and Inequalities (A-REI)Inequalities (A-REI)ving equations as a process of reasoning and explainInequalities (A-REI)solve equations and inequalities graphicallyStreting Functions (F-IF)Inequalities graphicallyons that arise in applications in terms of the context.Stand with zip in applications in terms of the context.Stand with zip in applications in terms of the context.Stand colspan="2">Advisions from sample surveys,and colspan="2">Advisions from sample surveys, | Fall SemesterTopic 2Topic 3Topic 418 Days12 Days14 DaysPolynomial and Rational FunctionsExponential and Logarithmic FunctionsSystems of Equations and InequalitiesF-IF 4, 5F-IF 4A-REI 12A-APR 6A-SSE 1b, 1cA-CED 2A-APR 6A-SSE 1b, 1cA-CED 3F-IF 7A-CED 2A-REI 6A-CED 1,3F-IF 7, 7eA-REI 7F-BF 3F-IF 8, 9N-VM 6, 10N-CN 1,2F-LE 4, 4.1N-CN 7N-CN 3 (+)F-BF 4AMajor ClustersAlgebra - AStructure in Expressions (A-SSE) ructure of expressions. ons in equivalent forms to solve problems. etic operations on polynomials. relationship between zeros and factors of solve equations as a process of reasoning and explain solve equations as a process of reasoning and explain solve equations and Inequalities (A-REI) ving equations as a process of reasoning and explain solve prodictions (F-IF)Algebra - Mons that arise in applications in terms of the context. rag Functions (F-BF) that models a relationship between two quantities. bability – Making Inferences and Justifying es and justify conclusions from sample surveys,Submer experime | Fall SemesterTopic 2Topic 3Topic 4Topic 518 Days12 Days14 Days14 DaysPolynomial and Rational FunctionsExponential and Logarithmic FunctionsSystems of Equations and InequalitiesSequences, Inductions, and ProbabilityF-IF 4, 5F-IF 4A-REI 12F-IF 3A-APR 1,2,3F-BF 1, 1bA-CED 2A-APR 5A-APR 6A-SSE 1b, 1cA-CED 3F-BF 2F-IF 7A-CED 2A-REI 6S-MD 3A-CED 1,3F-IF 7, 7eA-REI 7S-CP 2, 3F-BF 3F-IF 8, 9N-VM 6, 10S-CP 6N-CN 1,2F-LE 4, 4.1S-CP 9N-CN 3 (+)F-BF 4 | Fall SemesterTopic 2Topic 3Topic 4Topic 5Additional18 Days12 Days14 Days14 DaysTopic18 Days12 Days14 Days14 DaysTopicPolynomial and Rational FunctionsExponential and Logarithmic FunctionsSystems of Equations and InequalitiesSequences, Inductions, and ProbabilityConic SectionsF-IF 4, 5F-IF 4A-REI 12F-IF 3A-CED 1,2A-APR 1,2,3F-BF 1, 1bA-CED 2A-APR 5A-CED 1,2A-APR 6A-SSE 1b, 1cA-CED 3F-BF 2G-GPE 1F-IF 7A-CED 2A-REI 6S-MD 3G-GPE 2A-CED 1,3F-IF 7, 7eA-REI 7S-CP 2, 3G-GPE 3.1F-BF 3F-IF 8, 9N-VM 6, 10S-CP 6N-CN 1,2F-LE 4, 4, 1.1S-CP 9N-CN 3 (+)F-BF 4Structure in Expressions tructure of expressions. ms in equivalter forms to solve problems. etic with Polynomials and Rational Expressions tet with Polynomials and Rational Expressions tructure of expressions. ms in equivalties (A-REI) ding equations as a process of reasoning and explain solve equations as a process of reasoning and explain solve problems.Algebra - Areasoning with Equations and Inequalities (A-REI) enancy Quadratic, and Exponentions (Algebra - Interpreting Functions (F-IF) enancy Quadratic, and Exponentions | Fall SemesterTopic 2Topic 3Topic 4Topic 5Additional TopicTopic 618 Days12 Days14 Days14 DaysTopic 5Additional Topic19 DaysPolynomial and Rational EquationsExponential and Logarithmic FunctionsSystems of Equations and InequalitiesSequences, Probability ProbabilityConic SectionsTrigonometric FunctionsF-IF 4, 5F-IF 4A-REI 12F-IF 3A-CED 1,2F-IF 1A-APR 6A-SSE 1b, 1cA-CED 2A-APR 5A-CED 3,4F-IF 2, 2.1A-APR 6A-SSE 1b, 1cA-CED 2A-APR 5A-CED 3,4F-IF 2, 2.1A-APR 6A-SSE 1b, 1cA-CED 2A-REI 6S-MD 3G-GPE 2F-IF 4A-CED 1,3F-IF 7, 7eA-REI 7S-CP 2, 3G-GPE 3.1F-IF 6F-BF 3F-IF 8, 9N-VM 6, 10S-CP 6F-IF 7N-CN 1,2F-IE 4, 4.1S-CP 9Incursor 6F-IF 7N-CN 3 (+)F-BF 4Incursor 6Incursor 6Incursor 6Major ClustersSupporting ClustersIncursor 6Incursor 6Major ClustersSupporting ClustersIncursor 6Incursor 6Inductions on polynomialsRelations hid describ on undersonsIncursor 6relationship between zeros and factors ofIncursor -Intergreting Functions (I-EE)Indiguations and inequalities (A-REI)-Creating Functions (I-EE)Ing equations and inequalities graphically-Creating Functions (I-EE) <td< td=""><td>Fall Semester Spring Topic 2 Topic 3 Topic 4 Topic 5 Additional Topic 6 Topic 7 18 Days 12 Days 14 Days Topic 5 Additional Topic 6 Topic 7 Polynomial and Rational Functions Exponential and Logarithmic Functions Systems of Equations and Inequalities Sequences, Inductions, and Probability Trigonometric Functions Analytic F-IF 4, 5 F-IF 4 A-REI 12 F-IF 3 F-IF 9 A-APR 1, 2, 3 F-IF 2, 2, 1 F-IF 9 A-APR 1, 2, 3 F-IF 7, 1, 10 A-CED 2 A-REI 7 S-CP 2, 3 G-GPE 2 F-IF 4 A-CED 1, 3 F-IF 7, 7e A-REI 7 S-CP 2, 3 G-GPE 2 F-IF 6 F-IF 8 F-IF 8, 9 N-VM 6, 10 S-CP 9 Image: Classer Number and Logarithmic Part 6 N-CN 3 (+) F-IEF 4 A-REI 7 S-CP 2, 3 G-GPE 2 F-IF 7 N-CN 7 F-LE 4, 2, 1.3 S-CP 9 Image: Classer Number and Logarithmic Part 7 N-CN 7 F-LE 4, 2, 4.3 Seqeuatons and Inequalities (A-R</td><td>Fail Semester Spring Semester Topic 2 Topic 3 Topic 3 Topic 4 Topic 5 Additional Topic 6 Topic 7 Topic 7</td></td<> | Fall Semester Spring Topic 2 Topic 3 Topic 4 Topic 5 Additional Topic 6 Topic 7 18 Days 12 Days 14 Days Topic 5 Additional Topic 6 Topic 7 Polynomial and Rational Functions Exponential and Logarithmic Functions Systems of Equations and Inequalities Sequences, Inductions, and Probability Trigonometric Functions Analytic F-IF 4, 5 F-IF 4 A-REI 12 F-IF 3 F-IF 9 A-APR 1, 2, 3 F-IF 2, 2, 1 F-IF 9 A-APR 1, 2, 3 F-IF 7, 1, 10 A-CED 2 A-REI 7 S-CP 2, 3 G-GPE 2 F-IF 4 A-CED 1, 3 F-IF 7, 7e A-REI 7 S-CP 2, 3 G-GPE 2 F-IF 6 F-IF 8 F-IF 8, 9 N-VM 6, 10 S-CP 9 Image: Classer Number and Logarithmic Part 6 N-CN 3 (+) F-IEF 4 A-REI 7 S-CP 2, 3 G-GPE 2 F-IF 7 N-CN 7 F-LE 4, 2, 1.3 S-CP 9 Image: Classer Number and Logarithmic Part 7 N-CN 7 F-LE 4, 2, 4.3 Seqeuatons and Inequalities (A-R | Fail Semester Spring Semester Topic 2 Topic 3 Topic 3 Topic 4 Topic 5 Additional Topic 6 Topic 7 Topic 7 | |



Precalculus Honors – Scope and Sequence

Summary of Year for Precalculus Mathematics

In this Precalculus Course, students have three fundamental goals: 1) acquire a solid foundation in algebra and trigonometry, preparing them for other courses such as calculus, business calculus, and finite mathematics, 2) engage in opportunities to model and solve authentic real-world problems that require algebra and trigonometry, and 3) develop problem-solving skills, while fostering critical thinking, within an interesting mathematical setting. In this course students will review equations, linear inequalities, absolute value inequalities, and functions. They will construct functions from verbal descriptions and formulas (that extends work done in Algebra 2) and apply modeling skills to situations that students are likely to see in calculus when solving applied problems involving maximum or minimum values. Students will also develop their trigonometry skills from the perspective of the unit circle, rather than using right triangles as in Algebra 2. Furthermore, many of the liberal arts applications in the Algebra 2 course are replaced by more scientific or higher level applications in Precalculus.

Precalculus Honors moves at an accelerated pace, allowing for additional instructional weeks at the end of the course for teachers to prepare students for Calculus topics.

| Standa | rds for Mathematical Practice | Fluency Requirements for Precalculus | | |
|-----------------|--|--|--|--|
| Throug Commo | hout Precalculus, students should continue to develop proficiency with the on Core's eight Standards for Mathematical Practice: | A-SSE 2 See structure in expressions and use this structure to rewrite expressions and solve equations. | | |
| 1. | Make sense of complex problems and persevere in solving them. | | | |
| 2. | Reason abstractly and quantitatively. | A-APR 6 Divide polynomials with remainder by inspection in | | |
| 3. | Construct viable arguments and critique the reasoning of others. | simple cases. | | |
| 4. | Model with mathematics. | | | |
| 5. | Use appropriate tools strategically. | F-IF 3 Fluency in translating between recursive definitions and | | |
| 6. | Attend to precision. | closed forms. | | |
| 7. | Look for and make use of structure. | | | |
| 8. | Look for and express regularity in repeated reasoning. | | | |
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Educational Services

Precalculus Honors – Scope and Sequence

| 2017-2018 | | | | | | | | |
|-----------|--|---------------------------------------|--------------------|----------------------|-----------|--|--|--|
| Торіс | Content | Textbook Lessons | Start Date | Assessment Dates | # of Days | | | |
| 1 | Functions and Graphs | P.1, P.3, P.5, P.6, P.9, 1.1 – 1.8 | August 17, 2017 | September 7-8, 2017 | 16 | | | |
| 2 | Polynomial and Rational Functions | 2.1 – 2.7 | September 11, 2017 | October 3-4, 2017 | 18 | | | |
| 3 | Exponential and Logarithmic Functions | 3.1 - 3.5 | October 5, 2017 | October 19-20, 2017 | 12 | | | |
| 4 | Systems of Equations and Inequalities | 7.1, 7.2, 8.2, 7.4 – 7.6 | October 23, 2017 | November 8-9, 2017 | 14 | | | |
| 5 | Sequences, Induction, and Probability | 10.1 – 10.3, 10.5 – 10.7 | November 13, 2017 | December 6-7, 2017 | 14 | | | |
| | Conic Sections | 1.9, 9.1 – 9.3 | December 8, 2017 | NO Formal Assessment | 6 | | | |
| 6 | Trigonometric Functions | 4.1 - 4.8 | January 22, 2018 | February 16-17, 2018 | 19 | | | |
| 7 | Analytic Trigonometry | 5.1 – 5.3, 5.5 | February 20, 2018 | March 8-9, 2018 | 14 | | | |
| 8 | Additional Topics in Trigonometry | 6.1, 6.2, 6.5 – 6.7 | March 12, 2018 | March 28-29, 2018 | 14 | | | |
| 9 | Introduction to Calculus | 11.1 - 11.4 | April 9, 2018 | May 3-4, 2018 | 20 | | | |
| | · | | Total # of | 147 | | | | |