IRVINE UNIFIED SCHOOL DISTRICT

Year at a Glance - Math II

Link to Math II Standards

What Students Learn
Math II is the second course in the high school college preparatory math sequence that IUSD offers. Students in Math II will focus on analyzing quadratic functions in different representations to identify key features that they will compare to functions taught in Math I. The analysis of functions, particularly quadratic, leads to the extension of the number system to include rational exponents and complex numbers. Additionally, students recognize solving equations as a process of reasoning and build on their fluency in solving linear equations to expand their repertoire to quadratic equations. They will compute and interpret theoretical and experimental probabilities for different scenarios and use those probabilities to make decisions. Students will prove basic geometric theorems involving lines, angles, and polygons. Students will apply their earlier experiences with dilations and proportional reasoning to build a formal understanding of similarity, and they will then expand this understanding by extending it to trigonometric problems involving right triangles. Students will broaden their understanding of circles, in particular angles and segments that can be formed with a circle, and they will expand their knowledge of area and volume formulas to solve problems.

Unit Titles (Time Frame*)	All Students Will Demonstrate Proficiency in These Essential Standards
1. Quadratic Functions (4 weeks) 2. Structure of Expressions (3 weeks) 3. Quadratic Equations including Complex Numbers (5 weeks) 4. Rational Exponents and Radical Expressions (2 weeks) 5. Comparing and Analyzing Functions (3 weeks)	**Essential (High Priority) Standards:** ● Constructing quadratic functions in multiple representations (graph, equation, table, scenario) [A-CED.2, F-LE.3] ● Manipulating quadratic functions and expressions in different forms to reveal key features [F-IF.8] ● Understanding and solving quadratic equations as a process of reason and explaining the reasoning (including equations with non-real solutions) [A-REI.4, N-CN.7] ● Understanding similarity through transformations [G-SRT.2] ● Using trigonometric ratios to solve right triangles in applied problems, including special right triangles [G-SRT.8, 8.1] ● Using formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone [G-GMD.1, 3]
6. Probability (4 weeks)	**Students Will Work Toward Proficiency in These Supporting Standards**
7. Similarity and Geometric Proof (5 weeks) 8. Right Triangle Trigonometry (4 weeks) 9. Circles and Volume (3 weeks) 10. Connecting Algebra and Geometry (3 weeks)	**Supporting Standards:** ● Making meaning of the representation of rational exponents and radicals [N-RN.1] ● Performing operations with polynomials [A-APR.1] ● Understanding independence and conditional probability and using them to interpret data [S-CP.2, 3, 5] ● Defending and writing mathematical proofs about geometric theorems [G-CO.9,10,11] ● Identifying and describing relationships about circles involving lines and angles [G-C.2] ● Deriving equations for circles and parabolas [G-GPE.1,2]

*All time frames are approximations based on student progress and understanding.   **Revised August 2022**