Integrated Math 3 Honors

Any Grade Level after completion of Math 2 Honors with a "B" or better (10 Credits)

- ***Meets high school graduation requirement for math credits***
- ***Meets the UC/CSU subject area "C-Mathematics" requirement***

General Information

Description

In **Integrated Math 3 Honors**, students will learn concepts such as:

- Manipulating and combining polynomial and rational expressions.
- Graphing polynomial and rational functions and identifying key features of the graphs (turn-around points, end behavior, asymptotic behavior, etc.)
- Interpreting functions given graphically, numerically, symbolically, and verbally.
- Modeling with functions using tables, functions, and understanding when the context allows for a model that is only an approximation.
- Creating and modeling real-life scenarios using polynomial functions, rational functions, and trigonometric functions.
- Understanding, graphing, and modeling polar coordinates and functions.
- Understanding, graphing, and modeling parametric functions.
- Deriving and proving relationships of trigonometric functions.
- Graphing trigonometric functions and identifying key features.
- Proving and applying the Law of Sines and Law of Cosines.
- Using statistics and the standard normal curve to make inferences on a population.
- Understanding and calculating limits of functions.
- Using limits to graph functions.

As in all math courses offered at SDUHSD, students are aware of and make use of all **Standards for Mathematical Practices:**

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

Students will be expected to work collaboratively as well as individually. On a regular basis, classes will include:

- Group problem solving followed by group presentations.
- Open ended problems that are applications of the content being covered.
- Challenge problems, which may consist of detailed diagrams and presentations.

Expectations and Goals

This course covers the concepts covered in Integrated Math 3 in greater depth as well as several Pre-Calculus topics. Integrated Math 3 Honors is an accelerated challenging course designed for students who excel in math. Students may take Integrated Math 3 Honors after:

- A "B" or better in Integrated Math 2 Honors.
- Students may enter from Integrated Math 2 College- Preparatory after showing proficiency in a required summer bridge course

Students entering Integrated Math 3 Honors should already have a good understanding of the following concepts:

- Understanding properties of linear, exponential and quadratic functions.
- Graphing and describing features of linear, exponential and quadratic functions.
- Defining, evaluating, and comparing functions, and use them to model relationships among quantities.
- Knowing and proving properties of lines, triangles, quadrilaterals and circles.
- Solving real-world and mathematical problems using linear, exponential, and quadratic mathematical models.
- Understanding and applying right triangle trigonometry and the special right triangles.
- Understanding and calculating probability for independent and dependent events.
- Understanding unit circle trigonometry and radian measures of angles.
- Graphing and modeling with logarithmic functions.
- Proving and applying properties of logarithmic functions and inverse functions.

Students entering **Integrated Math 3 Honors** should also be able to solve problems such as

Probability Problem: A certain test for an antibody is applied to a blood sample. The test gives a positive result 5% of the time for people who do not have the antibody. The test gives a negative result 0.3% of the time for people who do have the antibody. It is known that the antibody appears in 2% of the population. What is the probability that a person selected at random would test positive for the antibody?	Equation Problem: Solve the equations to determine whether x or y is larger: $2(x-7)^5+9=73$ $5-(y+1)^2=-103$
Word Problem: A student stands across the street from a building and measures her angle of elevation at this point to the top of the building to be 8 degrees. She then walks forward 3 meters and measures the angle of elevation now to be 12 degrees. How tall is the building?	Function Problem: Graph the logarithmic function $g(x)=\log_2(x-1)+3.$ $Find\ f(5) and\ the\ x-value\ where\ g(x)=-4$
Coordinate Geometry Problem: A circle has equation of $x^2-4x+y^2+2y=30$ Write the equation of the circle with the same center and a radius twice as long.	Trigonometry Problem: Find the value of all six trigonometric function at $\frac{17\pi}{6}$

Estimated Homework

Students should expect an average of 1 to 2 hours of homework each class period. (This is a general guideline for planning and scheduling purposes. A student's individual ability level and competency may affect the actual preparation times needed.)

This Class Is Best For...

Students should have a “B” or higher in Integrated Math 2 Honors. This course covers the concepts covered in Integrated Math 3 in greater depth as well as several Pre-Calculus topics. Integrated Math 3 Honors is an accelerated challenging course designed for students who excel in math.

Course Materials

Required Materials

Modules are adapted from The Mathematics Vision Project (see link below) using Common Core State Standards

Internet resources

- Course overviews, modules, standards sequencing, student help and more...

  https://sites.google.com/a/sduhsd.net/student-curriculum/