Integrated Math 2
Course Preparedness Profile & Expectations

Students should have a "C" or higher in Integrated Math 1 or Integrated Math 1 Honors.

Difficulty Level: Difficult
Estimated Homework: 30 – 60 minutes
Prerequisites: C in IM1
Meets High School graduation requirement for mathematics
Meets UC/CSU subject area "c" requirement

Below are some guidelines for choosing the best course for an individual student. This is *not* a placement test and it should *not* be used as the only criteria for making placement decisions.

Student Background

Students entering **Integrated Math 2** should ***already*** have a good understanding of the following concepts:

- Working with radicals and integer exponents
- Understanding the connection between proportional relationships, lines, and linear equations.
- Solving linear equations as well as apply graphical and algebraic methods to analyze and solve systems of linear equations in two variables.
- Understanding arithmetic and geometric sequences and their relationship to linear and exponential functions.
- Defining, evaluating, and comparing functions, and use them to model relationships among quantities.
- Understanding congruence and similarity using transformational geometry.
- Solving real-world and mathematical problems using linear and exponential mathematical models.

Students entering **Integrated Math 2** should also be able to solve problems such as:

<table>
<tr>
<td>Data Analysis Problem:

Katherine measures the heights, in inches, of 16 of her classmates to be: 73, 63, 64, 67, 71, 68, 66, 68, 71, 74, 67, 70, 69, 70, 64 and 72. Create a histogram for the heights of her classmates. Find and interpret the 5-number summary, the mean, and the mode for this data.</td>
<td>Word Problem:
Charlie and Joey are looking at incomplete table:
<table>
<tr><td>x</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>f(x)</td><td>2</td><td>a</td><td>b</td><td>54</td></tr>
</table>
Charlie says that a= $19\frac{1}{3}$ and b= $26\frac{2}{3}$. Joey claims that $a = 6$ and $b = 18$. Their teacher says that both answers are valid. Explain how each student came up with their values for a and b.</td>
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<td>Word Problem:

Susan deposits $90 in a bank account that pays 2% interest annually. Create a function B(t) that represents the amount of money in the bank account t years after Susan's deposit. What is B(18) and what does it represent? Using a graphing utility, solve and interpret B(t)=270.</td>
<td>Construction Problem:

Construct a regular hexagon using a compass and straightedge. Explain how you know the shape created is a regular hexagon.</td>
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Rigid Motion Problem:

Triangle ABC, with vertices A(1,1), B(2,-3) and C(0,5), undergoes the following transformations:

- A reflection across line y=x.
- A rotation of 90 degrees about A.
- A translation of 2 units up and 3 units left.

What are the coordinates of the vertices of the triangle after it has undergone these three transformations?

Function Problem:

Find an explicit and recursive rule for the function that fits the data in the table. Calculate f(10). Graph the function and determine its domain and range.

x	2	3	4	5
f(x)	5/3	5	15	45

Course Content and Expectations

In **Integrated Math 2**, students will learn concepts such as:

- Manipulating algebraic expressions, including rearranging, collecting terms, factoring, applying properties of exponents, and transforming expression between different forms.
- Understanding properties of quadratic expressions and functions equations (including roots, vertices, intervals of increasing/decreasing).
- Understanding the concept of a function, domain, and range, and identifying properties of functions and graphs.
- 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.
- Constructing and comparing and linear, exponential, and quadratic models to solve real-life problems.
- Writing, interpreting, and translating among various forms of quadratic equations.
- Graphing and Analyzing properties of absolute-value functions and piece-wise functions.
- Experimenting, conjecturing and proving properties of triangles, quadrilaterals, polygons and circles.
- Using similarity to define and solve problems using right-triangle trigonometry.
- Using a coordinate system to analyze properties of circles and parabolas.
- Finding probability of independent, dependent and conditional events by experimentation, theoretical model, Venn diagrams, tree diagrams, and two-way tables.

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

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. 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.