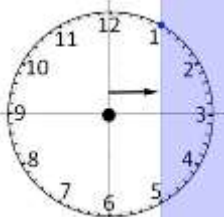
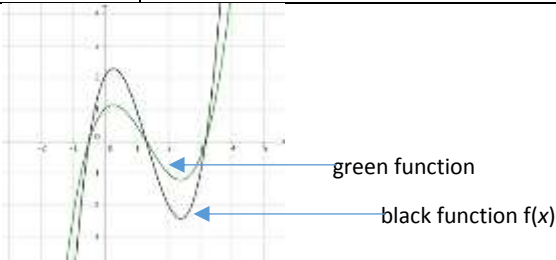


Major Learning Targets for This Course

Polynomial Functions		
Students will perform arithmetic, solve equations, and graph with polynomial functions (<i>polynomials are numbers represented with many terms, like $3x^2 + 4x - 1$.</i>)		
"I can add, subtract, multiply and divide polynomials."	"I can solve a polynomial equation and understand if my answer makes sense."	"I can graph a polynomial equation, and explain the key features of the graph."
<p>Example Task: A company packs its popcorn in cardboard boxes with square bottoms. In a box that holds 216 in^3 of popcorn, what is the side length of the box that uses the least amount of cardboard?</p> <ol style="list-style-type: none"> 1) Draw and label the box. 2) Write a function that models the surface area of the box as a function of the height of the box. 3) Create a table that shows values of the function. 4) Based on the table, make an estimate of the side length of the box that uses the least cardboard. 5) By testing values near your estimate, improve your estimate. 		

Trigonometry		
Students will use the unit circle and trigonometric functions to find angles and distances, and to model real-world situations.		
"I can find the sine, cosine, and tangent of angles larger than 90° ."	"I can name angles by their degree <i>and</i> radian measures."	"I can graph a sine function and model sound, radio, or light waves with it."
	<p>Example Task: A student is trying to sketch a large picture of a clock face for an art project. She has drawn a circle that is one foot in radius, and she has a tool to measure distance, but she doesn't have a tool to measure angles. How far to the right of the center of the clock should she draw the mark for one o'clock? Explain your reasoning using what you know about trigonometry.</p>	

Transformations of Functions		
Students will understand how changing the numbers in an equation changes the graph of the equation.		
"I can change numbers in an equation to shift, stretch, or reflect the graph of that equation."	"I can compare two graphs and explain how the equation for one might be changed into the equation for the other."	"I can use what I know about changing equations to model a real situation, using any function type I've learned about."
<p>Example Task: The black function is $f(x)$. Write an equation, related to $f(x)$, that might describe the green function. Explain why your equation would cause the changes in the graph from the black function to the green one.</p>		

Expected Behaviors in Math Class

Students will...

- Make predictions and estimations
- Decide if their answer is reasonable
- Use examples and counterexamples to justify a conclusion
- Explain their thinking and their process to solving a problem
- Apply mathematics to solve problems in everyday life
- Consider available tools to help them solve problems (including hands-on tools and technology)
- Use technology to explore and deepen their understanding
- Communicate ideas clearly verbally and in writing, using math vocabulary when appropriate
- Look for patterns and shortcuts

How Can I Support My Student in This Course?

1. Ask Questions

- When your student is stuck, ask him/her questions like:
 - “How do you know?”
 - “Have you seen a similar problem like this before?”
 - “Does your answer make sense?”
 - “What is the problem asking you?”
 - “What information do you need to solve this question?”

2. Encourage Your Student to Ask Questions

- You don’t need to be able to answer every question that students may come up with; encourage your student to write down his/her question to bring to a teacher or peer the next day

3. Ask Your Student to Draw the Math Problem

- All mathematics can be represented visually; visual representations help students understand the concepts
- Encourage color coding

4. Encourage Multiple Representations of the Problem

- Ask your student to solve the problem in a different way, and to make connections between the different representations

5. Value Mistakes

- Students are learning when they are making mistakes; create an environment where your student feels comfortable making a mistake and learning from it

6. Don’t Simply Tell Them the Right Answer

- Once students are aware that their answer is right, they are more likely to stop thinking about the math
- Instead of telling them the right answer, ask them a question (see #1) or have them draw a picture

7. Praise Effort

- When your student gets a right answer, acknowledge how hard they must have worked and practiced
- When your student is stuck, acknowledge that sometimes math is challenging and that if they continue to practice and work hard, they will improve

For more information, visit scusd.edu/math or contact Mikila-Fetzer@scusd.edu, Math Coordinator

SCUSD’s Vision for Instruction and Assessment: *As a community of learners, we strive to create positive and engaging environments where a rigorous, student-centered curriculum is central. Teachers use inquiry-based instruction and formative assessment practices to support ALL learners in maturing socially and in becoming disciplinary thinkers.*