Integrated Math 3
10 Day "Extended Learning"

Day 1	**Solving Operations of Functions** • Using f(x) = x+2 and g(x) = -2x + 5, find: a) (f+g)(x), b) (f-g)(x), c)(f·g)(x), and d) $\left(\frac{f}{g}\right)(x)$. • Show all steps when solving each math problem by writing an explanation for each step.
Day 2	**Graphing Operation of Functions** • From Day 1, graph the 4 functions above on the same coordinate plane using different colors. • Label the graphs appropriately and show key features (identify all points of intersection; increasing, decreasing, positive, or negative, and end behavior).
Day 3	**Composition of Functions** • Using the functions from Day 1, find $f \circ g$ and $g \circ f$. Explain how you solved each step in words. **Inverse Relations** • Using the functions from Day 1, find the inverse of each function. Explain how you solved each step in words. • Graph both functions on the same coordinate plane.
Day 4	**Solving Operations of Functions** • Using f(x) = 3x+2 and g(x) = $x^2 + 3x - 4$, find: a) (f+g)(x), b) (f-g)(x), c)(f·g)(x), and d) $\left(\frac{f}{g}\right)(x)$. • Show all steps when solving each math problem by writing an explanation for each step.
Day 5	**Graphing Operation of Functions** • From Day 4, graph the 4 functions above on the same graph using different colors. • Label the graphs appropriately and show key features (identify all points of intersection; increasing, decreasing, positive or negative; and end behavior).

Day 6	**Composition of Functions** • Using the functions from Day 4, find $f \circ g$ and $g \circ f$. Explain how you solved each step in words. **Inverse Relations** • Using the functions from Day 4, find the inverse of each function. Explain how you solved each step in words. • Graph both functions on the same coordinate plane using a different color for each.
Day 7	**Solving Operations of Functions** • Create 3 of your own functions for f(x) and g(x). Then, find: a) (f+g)(x), b) (f-g)(x), c)(f·g)(x), and d) $\left(\frac{f}{g}\right)(x)$. • Show all steps when solving each math problem by writing an explanation for each step.
Day 8	**Inverse Relations** • Create 4 of your own Inverse Relation functions. • Show all steps when solving each math problem by writing an explanation for each step. • Share it with a family member and see if they get the correct answers.
Day 9	**Graphing** • From Day 7, create a graph using one of your own functions f(x) and g(x). Include all 4 parts on the same coordinate plane using different colors for each part a-d • From Day 8, create a graph using one of your own inverse relation functions. Include both the function and inverse function on the same coordinate plane using a different color for each. • Label the graphs appropriately and show key features (identify all points of intersection; increasing, decreasing, positive, or negative; and end behavior).
Day 10	• Teach a family member how to solve operations of functions (day 1, day 4, or day 7). • Write a paragraph reflection on how your lesson went. Explain any questions your family member had and if he/she was able to solve the problems correctly after your lesson. (6-10 sentences)