Functions: Solving, Comparing, and Finding Values

I. **Finding the intersection of two functions.**
   - Write the points of intersection (make sure you find the points numerically in the table and graphically using menu, pts and lines, intersection).

   - What do the points of intersection mean?

   - Justify your points of intersection algebraically:

II. **Comparing two functions and finding values.**
   - Find:
     i. f1(3)=
     ii. f1(-1)=
     iii. f1(x) = 5 when x =   ?
     iv. g1(-1)=
     v. g1(2)=
     vi. WHEN g1(x) = f1(x)

   - **WHEN** is f1(x) > g1(x)? Explain algebraically, graphically, and in words.

III. On page 2.3, create a data table by capturing values (slide the vertical line across the page) and placing the x values in column A, f1(x) values in column B, and the g1(x) values in column C.

- In column D, generate the sequence B – C.
  - i. What does this column of information tell you when comparing the two functions?

  - ii. Create a scatter plot on the next page and explain how the graph tells the story of B – C and how this relates to your in part i.

- On page 2.5, generate the sequence B + C in column E (move columns over so you can see columns A, B, C, and E).
  - i. What does this column of information tell you when comparing the two functions?

  - ii. Create a scatter plot on the next page and explain how the graph tells the story of B + C and how this relates to your answer in part i.

IV. Combining two functions

- Go back to page 2.3 and look at the sequence B – C (located in column D.
    - i. Can you write the new equation to represent B - C?

    - ii. Write the new equation as h1(x) on the same page as the scatter plot.

- Go back to page 2.5 and look at the sequence B + C (located in column E).
    - i. Can you write the new equation to represent B - C?

    - ii. Write the new equation as h1(x) on the same page as the scatter plot.

- Summarize what you have learned doing this activity