Unit 1: *Summing It Up*

Below are prompts to help you discuss some key ideas from Unit 1. Pick **three** to write about for your *Summing It Up* assignment.

1. **Growth Mindset**: What is a growth mindset? Contrast it with a fixed mindset; discuss at least three key differences between the two mindsets. What are the advantages to having a growth mindset? What are some ways of cultivating a growth mindset?

2. **Number Personalities**: In Chapter 1 of *The Joy of x*, Strogatz asserts that numbers "obey certain laws and have certain properties, personalities, and ways of combining with one another" (4). Give at least three examples from Chapter 2 that illustrate this point.

3. **Ever More Versatile Numbers**: In Chapter 5 of *The Joy of x*, Strogatz writes about a "narrative line that runs through arithmetic, … the story of the quest for ever more versatile numbers" (27). What does Strogatz mean by this? Using material from Chapters 1, 3, and 5, describe three stages in the invention (or discovery?) of numbers.

4. **Commutativity**: What does the commutative law of multiplication say? What does commutativity mean more generally? What are some other examples of commutativity in math or in life? What are some examples of non-commutativity?

5. **Notating Numbers**: Describe at least two ways of notating numbers besides the familiar Hindu-Arabic system (base ten place-value system) that we typically use in math today. Explain the advantages of using a place-value system and the important role that the numeral 0 plays in this system.

6. **Propose a Key Idea**: If an idea from Unit 1 struck you that is not on this list, you may propose your idea to me (one week before the portfolio is due), and I will let you know if it is suitable as a key idea for Unit 1.