This weightless assignment is due on Crowdmark by Wednesday, October 7, at 9:00pm EST. It does not count toward your course grade.

Exercise 1. Read Spivak Chapter 3, "Functions."

(a) Suppose f and g are functions, and $A :=$ domain f, and $B :=$ domain g. Write the domain of: $f + g$, $f \cdot g$, f/g, cf (for $c \in \mathbb{R}$), and $f \circ g$.

(b) Define f by $f(x) := \sqrt{x}$ and g by $g(x) := -1 - x^2$. What is the domain of f? of g? of $f \circ g$? of $g \circ f$?

Exercise 2. Read Spivak Chapter 4, "Graphs."

(a) How does Spivak define the distance between two points (a, b) and (c, d) in the plane? Do we need the least upper bound property of real numbers for Spivak's definition to make sense?

(b) Draw the graph of some function f where:

- $f(x) \leq 4$ for all $x \in$ domain f,
- $f(x) \neq 0$ for all $x \in$ domain f,
- if $x < -2$, then x is not in domain f.

Exercise 3 (Optional). You may re-do Q3 from For-Credit Assignment 1. I will grade your second attempt, and your grade for Q3 in FCA 1 will become the higher of your two attempts.