This weightless assignment is due on Crowdmark by Wednesday, September 30, at 9:00pm EST. It does not count toward your course grade.

Exercise 1. Read Spivak Chapter 8, "Least Upper Bounds," but identify and skip the part where he proves theorems from Chapter 7. Determine if each statement is true or false, and in one sentence explain why.

- (a) \mathbb{Q} has the least upper bound property.
- (b) \mathbb{N} does not have a least upper bound.
- (c) The empty set \emptyset has an upper bound.
- (d) The empty set \emptyset has a supremum.

Exercise 2. This is also based on Chapter 8. Give (without proof) the infimum and supremum of the following sets, if they exist:

 $A:=(-\sqrt{5},2], \quad B:=[-\sqrt{5},\infty), \quad C:=\{-2\}\cup(-\sqrt{5},\sqrt{7}).$