

1. (a) Explain how to use the Self-Reference Lemma to construct a sentence ϕ which, informally, says that ‘the Gödel number of ϕ is even’.
(b) Is the sentence ϕ in part (a) true or not true in the standard structure \mathcal{N} ?
(c) Is the sentence ϕ in part (a) provable or not from the set of axioms N ?
2. Repeat #1 with the word ‘even’ replaced by ‘odd’.
3. Textbook Exercise 9 from Section 5.3.1 (p. 129). This problem explains a tricky step in the discussion of the fixed-point theorem from Wednesday 5/1; we will discuss a bit about that point in class on Friday.