Math 314 Homework 2

Dr. Holmes

February 10, 2011

Write proofs of the following theorems of formal arithmetic. Some or all of these proofs may require you to formulate and prove additional lemmas. I am going to try a different strategy for feedback. You are required to submit at least one draft to me, on or before Friday the 18th. All drafts will be marked by Monday the 20th. If you submit drafts earlier I will try to get them back to you earlier. If you give yourself enough time, I will be willing to look at more than one draft. I do not promise to look at any drafts submitted after the 18th. Final versions of the proofs are due on Wednesday the 23rd. Further rewrites will not be offered (as feedback and rewriting is built into the process). This will overlap some other assignments (notably a computer lab but possibly also the next written assignment), so use your time wisely.

I prefer you to consult me, my notes, and no other source about writing these proofs. I will be around in office hours, notably for an extended period next Thursday afternoon (barring serious conflicts with the rest of my existence).

the associative law of addition: $x + (y + z) = (x + y) + z$

the left distributive law: $(x+y)z = xz+yz$ without using commutativity of multiplication. I will prove the right distributive law as an example in class.

commutativity of multiplication $x \cdot y = y \cdot x$ I will prove associativity of multiplication as an example in class.