CSI 35 LECTURE NOTES (Ojakian)

Topic 2: Introduction to Mathematical Terminology

OUTLINE
(References: Wells 1 - 4)

1. Mathematical Terminology

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1. Terminology about mathematical reasoning
   (a) Theorem, Lemma, Corollary
   (b) Definition (note: some precise definitions omitted in favor of loose description, e.g. the integers)
   (c) Proof
2. Other Terminology
   (a) Integers
   (b) Definition of positive, negative.

   PROBLEM 1. *Is 0 positive? Prove your answer.*

   (c) Division ($n|m$)

   PROBLEM 2. *How might you define the terminology "even" and "odd"?*

   PROBLEM 3. *1) Make up a simple definition, 2) State a theorem that concerns your definition, and 3) Prove your theorem.*
3. Harder Questions?
   (a) Are there infinitely many prime numbers?
   (b) Are there infinitely many twin primes?
4. Programming to test hypothesis

   PROBLEM 4. *Write Python programs in SageMath to test the above (use the Primes() of SageMath).*