Handout $4\frac{15}{16}$
The Crimi Theorems Which May Be of Use for Basic Analytic, Number Theoretic, or Algebraic Proofs
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Let our universe be $\mathbb{R}$.
You may assume:

Theorem C.1: $\forall x \in \mathbb{R}$, it is the case that $x = x$.

Theorem C.2: $\forall x \in \mathbb{R}$, and $\forall y \in \mathbb{R} \quad x \leq y \wedge x \geq y \Longrightarrow x = y$.

Corollary C.2: $\forall x \in \mathbb{R} \quad (x \leq x \wedge x \geq x) \Leftrightarrow x = x$.

Definition C.3: Let $x \in \mathbb{R}$ and $y \in \mathbb{R}$. We say x is greater than y $(x > y)$ whenever $y < x$.

Corollary C.3: Let $x \in \mathbb{R}$ and $y \in \mathbb{R}$. $(x > y)$ *iff* $y < x$.

The challenge: Try to prove these claims.

The promise: If you can not prove them; you still may use them on basic analytic, number theoretic, or algebraic arguments.

If there are any other seemingly 'obvious' definitions, lemmas, theorems, corollaries, laws, etc. you wish to cite for an analytical or algebraic proof for class, please ask about it as soon as possible or propose other lemmas, theorems, corollaries, or defintions that are of use.