Chapter 1

Axioms

1. $\mathbb{C} \supset \Re$
   The set of complex numbrs are a proper superset of all real numbers.

2. $\forall s \in \mathbb{C}(s = a + ib \wedge i = \sqrt{-1} \wedge a \in \Re \wedge b \in \Re)$
   It is true that for all numbers s in the set $\mathbb{C}$ that $i = \sqrt{-1}$ and that a is a real number and that b is a real number.

3. $\forall s \in \mathbb{C}$ $(\mathrm{Re(s)} = \mathrm{a} \wedge \mathrm{Im(s)} = \mathrm{b})$
   The function Re applied to any complex number s will return the real part a, and the function Im will return the imaginary part b.

4. $ib \in s \perp a \in s$
   All values bi exists in a dimension perpendicular to $\Re$. All values in $\mathbb{C}$ exists in a plane, where one axis is the real coordinate and the imaginary component of s is regarded as ocupying another coordinate axis in a cartesian coordinate system.

5. $\exists s \in \mathbb{C}(s = 0 \wedge s = 0 + 0i)$
   There exists an elemment s in $\mathbb{C}$ such that s is null and the meaning of this is that a = 0 and b = 0. This is called the null element.

6. $\exists s \in \mathbb{C}(s = 1 \wedge s = 1 + 0i)$
   There exists an element s in $\mathbb{C}$ such that s is 1 and the meaning of this is that a = 1 and b = 0. This is