1 Introduction

Statement Sentence that is either true or false. i.e. 1+1=3

Compound Statement several statements connected by logical operators.

1. NOT $\neg$
2. AND $\wedge$
3. OR $\vee$
4. implies $\implies$

Open Sentence Sentence w/ one or more variables. Either true or false, takes on values from domain.

Implies if A then B, undefined with false hypothesis

If and only if biconditional $\iff$

Logically Equivalent Compound Statement that have the same truth tables.

1. Theorem: big statement, true has proof
2. Proposition true statement has proof.
3. Lemma: helper statment, has proof, used in Theorem.
4. Corollary: immediate consequence of a theorem.
5. Axiom: assumption, statement accepted as true.

2 Chapter 2

M any theorems have for if a then b

2.1 Divisibility

Let a,b $\epsilon \mathbf{Z}$ $a \mid b$ means that there is an integer k so that ak=b
$a \nmid b$ means that a does not divide b or that the statement is false

2.1.1 DIC(Divisibility by Integer Combinations)

$a, b, c \epsilon \mathbb{Z}, a \mid b \; and \; a \mid c$