

**MATH 300. INTRODUCTION TO
MATHEMATICAL REASONING.
FALL 2015.
WEEK 3 (LECTURE 4,5)
CONDITIONALS AND BICONDITIONALS**

1. Reading: Section 1.2, Lecture Notes 4,5.
2. Home assignment (Due Monday , September 21). Part 1 (do not submit)
Sect.1.2: Problems 1,2.
3. Home assignment (Due Monday, September 21). Part 2 (to submit).
Sect.1.2: 3(a,b,c), 5(a,b,d,f),6(a,b,d,e), 8(a,b,d),12(c,e,f),13(b,d),14(b,d),16(b,e,f,g). ■
Extra problems: 1) Is Sheffer operation

$$P \Box Q \equiv \sim P \wedge \sim Q$$

commutative; associative?

2a) Which Propositional connective corresponds to the polynomial $x(y + z)$ at Boolean Algebra?

2b) Which polynomial corresponds to the the conditional $P \Rightarrow Q$?

3*) Express the disjunction $P \vee Q$ by a formula containing only conditionals.

4) 3 students Peter, Roman, Serge have 3 different majors: Mathematics, Physics, Chemistry.

If Mathematics is Peter's major then Physics isn't Serge's major.

If Physics isn't Roman's major then Mathematics is Peter's major;

If Mathematics isn't Serge's major then Chemistry is Roman's major.

Define the majors of the students.