

Math 310 Assignment 2

PROBLEMS: 1.50, 1.51, 2.4, 2.9. 2.17, 2.21, 2.38, 2.44, 2.50, 2.51

In addition, complete the following supplemental problem:

(I) Using a truth table, show that $\neg(P \Rightarrow Q)$ is equivalent to $P \wedge \neg Q$.

(Aside: This is the logical equivalence that we are using when we write a proof by contradiction.)

The problems above are DUE FRIDAY, OCTOBER 12th at lecture or during office hours.

HOMEWORK NOTES/HINTS

- Problem 1.50: If you have the older printing of the book, then there is a typo on this problem. In part (a), you should be proving that $f(C \cap D) \subseteq f(C) \cap f(D)$. (i.e. it should be ‘intersections’, not ‘unions’.)
- Problem 2.38: The wording may be confusing, here is what I want you to do: Both parts are ‘if and only if’ statements. If the statement is true in both directions, prove it. If not, give a counterexample and tell me if the implication is true in one of the directions (or in neither of the directions).
- Problem 2.44: You may simply give a truth table as a proof.
- If you finish the homework early or if you are looking for some extra practice try the following problems:

CHALLENGE PROBLEMS: 2.36, 2.40

These are not due, but if you complete them all correctly and hand them in with your homework, I will award you one extra credit point (if you do this, then please put the challenge problems at the end and clearly label them).