

Notebook: Proofs Portfolio

Instead of having a final exam, you will create a notebook containing excellent versions of certain proofs. The proofs will be the problems listed below, plus all the 'Prove' (not 'Board/Claim') problems on the remaining homeworks (until we reach 20 proofs). You will need to rewrite your proof of that problem carefully, correctly and neatly and put it into your notebook. One proof per page.

This Friday, I'll take up what you have for an informal review. The final version is due on Thursday, June 30 at the end of class. You can give me your notebook anytime before that Thursday for a review.

The proofs will be evaluated according to the rubric handed out in class.

List of problems/proofs:

1. Use a truth table to show that "If P then Q " is equivalent to "If not Q then not P ".
2. Prove that $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$.
3. Prove $A \setminus (B \cup C) = (A \setminus B) \cap (A \setminus C)$.
4. Prove $(A \setminus B) \cap B = \emptyset$.
5. Prove if $A \subseteq B$ then $A \cup B = B$.
6. Prove if $A \subseteq B$ and $C \subseteq D$ then $A \times C \subseteq B \times D$.
7. §4.2#7a
8. Prove that if R and S are transitive relations on A then $R \cap S$ is also transitive.
9. §4.6#3d (prove it is an equivalence relation)
10. §5.1#5a (Just prove that is is a function)
11. §5.3#4a (Take $B = \mathbf{R} \setminus \{3\}$)
12. §6.1#2
13. §6.1#6a
14. §6.3#9
15. Chapter 2, #6
16. Chapter 2, #11