Bridge to Abstract Mathematics

Set Theory: Set Operations

Let A, B, C and D be sets. Prove that….

1. A  B iff A \ B = Ø.
2. If A  B U C and A ∩ B = Ø, then A  C.
3. C  A ∩ B iff C  A and C  B.
4. If A  B, then A \ C  B \ C.
5. (A \ B) \ C = (A \ C) \ (B \ C).
6. If A  C and BC, then A U B  C.
7. (A U B **) ∩** C **** A U (B ∩ C).
8. A \ B and B are disjoint.
9. If C  A and D  B, then C ∩ D  A ∩ B.
10. If C  A and D  B, then C U D  A U B.
11. If C  A, D  B, and A and B are disjoint, then C and D are disjoint.
12. If C  A and D  B, then D \ A  B \ C.
13. If A U B  C U D, A ∩ B = Ø, and C  A, then B  D.