

Mathematics 216
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Homework 16
Due March 2, 2012

1. Prove or give a counterexample:

If A , B , and C are sets, then $A \setminus (B \cup C) = (A \setminus B) \cup (A \setminus C)$.

2. Suppose that $f : A \rightarrow A$ is defined by $f(x) = x^3$, where A is a subset of the complex numbers. Give examples of a set A so that

- (a) f is bijective.
- (b) f is injective but not surjective.
- (c) f is surjective but not injective.
- (d) f is neither injective nor surjective.

3. Show that

$$(A \cup B) \setminus (A \cap B) = (A \setminus B) \cup (B \setminus A).$$