Math 23a - Proof 1.1

Paul Bamberg

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- Suppose that a and b are two elements of a field F. Using only the axioms for a field, prove that $\forall a \in F$, $0a = 0$.
- $0 + 0 = 0$
- $(0 + 0)a = 0a$
- $0a + 0a = 0a$
- $0a + 0a + (-0a) = 0a + (-0a)$
- $0a + 0 = 0$
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- Suppose that a and b are two elements of a field F. Using only the axioms for a field, prove that if $ab = 0$, then either a or b must be 0.
- Either $a = 0$ or $a \neq 0$
- ...

- Suppose that a and b are two elements of a field F. Using only the axioms for a field, prove the additive inverse of a is unique.
- ...