

Quiz 2

Math 344

Week Two

- Write your name here: _____.
- Answer all questions.
- Proofs are graded for clarity, rigor, neatness, and style.
- Good luck!

1. Let G be a group, and let's call its identity e . Prove

for all $a, b, c \in G$, if $ca = cb$, then $a = b$.

Proof. Choose any $a, b, c \in G$ and assume $ca = cb$. Since G is a group, we know c has an inverse—let's call it d . Then

$a = ea$	(definition of identity)
$= (dc)a$	(definition of inverse)
$= d(ca)$	(associativity)
$= d(cb)$	(hypothesis)
$= (dc)b$	(associativity)
$= eb$	(definition of inverses)
$= b$	(definition of identity).

□