

Math 344 Fall 2009
HW #4 – Due Thursday 10/29

Prove problems 1 – 3:

- 1) For any sets A, B, C , if $A \cup B \subseteq B$, then $A \subseteq A \cap B$.
- 2) For any $n \in \mathbb{Z}$, if n is odd, then n^2 is odd.
(Hint: n is odd if and only if there exists an integer k such that $n = 2k + 1$).
- 3) Let $f : \mathbb{R} \rightarrow \mathbb{R}$ be defined by $f(x) = 7x + 5$. Then f is 1-1 and onto.
- 4) For each of the following tables, whenever possible, complete it so that it could be the table for a group. If this is not possible, explain why not. Of the tables that can be completed to be group tables, can any of these be completed in more than one way and still be a group table? Why or why not?

	a	b	c
a		a	
b	a	b	c
c		c	

	a	b	c	d
a	a	b	c	d
b	b	a		
c	c		a	
d	d			

	a	b	c	d
a	a	b	c	d
b	b	c		
c	c			
d	d			

	a	b	c	d	e
a	a	b	c	d	e
b	b	a			
c	c				
d	d		a		c
e	e				

	a	b	c	d	e
a	a	b	c	d	e
b	b		d		
c	c				
d	d		a		c
e	e				