Math 105 Collected Homework #5
Modular Arithmetic Tables
Due Wednesday, October 12

In class, we developed addition and multiplication for "mod 5" arithmetic and for "mod 4" arithmetic. For this assignment, do the same for mod 6 and mod 7 arithmetic, by completing each of the tables on the second page of this document.

If you like, you may write your answers on the following page, rather than drawing new tables on a separate sheet of paper. I don't necessarily need to see your work, but if you're unsure that what you're doing is correct, you may include your work in the space below on this page (or on a separate sheet, if you prefer). Let me know if there's anything in your work that you're not quite sure about, and I'll take a closer look at it for you.

Also, determine whether each of the tables represents a "group" – that is, determine whether each set has closure, identity, and opposites under the operation being considered. Explain your reasoning– if it's a group, clearly explain why; if it's not a group, give a specific example that contradicts one of the three properties (opposites, closure, identity) a group must satisfy.

mod 6 addition

	0	1	2	3	4	5
0						
1						
2						
3						
4						
5						

mod 6 multiplication

	1	2	3	4	5
1					
2					
3					
4					
5					

mod 7 addition

	0	1	2	3	4	5	6
0	0	1	2	3	4	5	6
1	1	2	3	4	5	6	0
2							
3							
4							
5							
6							

mod 7 multiplication

	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	1	3	5
3						
4						
5						
6						