Fall 2022, Math 522: Preliminary Problem Set 4
Due: Wednesday, September 21st, 2022
Modular Arithmetic

Preliminary problems. These problems should be completed before discussion.

(P1) Fill in the addition and multiplication tables for $\mathbb{Z}_6$ below. **For this problem**, you may omit the $[\ \ ]_6$ notation to save time/space.

$+$	$[0]_6$	$[1]_6$	$[2]_6$	$[3]_6$	$[4]_6$	$[5]_6$
$[0]_6$	0					
$[1]_6$						
$[2]_6$				5		
$[3]_6$						
$[4]_6$				1		
$[5]_6$						

$\cdot$	$[0]_6$	$[1]_6$	$[2]_6$	$[3]_6$	$[4]_6$	$[5]_6$
$[0]_6$			0			
$[1]_6$						
$[2]_6$					2	
$[3]_6$						
$[4]_6$						
$[5]_6$						1

(P2) Find all $x \in \mathbb{Z}_7$ that satisfy $x^2 = [4]_7$.

(P3) In the previous problem, is x an integer or an equivalence class? Be sure your answer above reflects this!