Spring 2021, Math 522: Preliminary Problem Set 3
Due: Thursday, February 11th, 2021
Modular Arithmetic

Preliminary problems. These should be submitted to Gradescope before Thursday discussion.

(P1) Fill in the addition and multiplication tables for $\mathbb{Z}_6$ below. You may omit the $[\ ]_6$ notation if you prefer.

$+$	$[0]_6$	$[1]_6$	$[2]_6$	$[3]_6$	$[4]_6$	$[5]_6$
$[0]_6$	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 $x^2 = [4]_7$.