Spring 2019, Math 320: Preliminary Problem Set 3
Due: Thursday, February 14th, 2019
Modular Arithmetic

Preliminary problems. These problems should be completed before discussion on Thursday.

(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		
$[3]_6$						
$[4]_6$						
$[5]_6$						

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

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