MAT-255- Number Theory

Spring 2024

IN CLASS WORK APRIL 19

Your Name: \_\_\_\_\_ Group Members:\_\_\_\_

**Problem** 1 Let  $x, y, z \in \mathbb{Z}$  and let p be a prime number.

- (a) Prove that if  $x^{p-1} + y^{p-1} = z^{p-1}$ , then  $p \mid xyz$ .
- (b) Prove that if  $x^p + y^p = z^p$ , then  $p \mid (x + y z)$ .