



NUMBER THEORY I  
SPRING 2018

ASSIGNMENT 1.2  
DUE JANUARY 17

**Exercise 1.** Textbook exercise 1.10

**Exercise 2.** Let  $a \in \mathbb{Z}$ . Explain why  $a$  has exactly one of the following forms:  $4k$ ,  $4k + 1$ ,  $4k + 2$  or  $4k + 3$  for some  $k \in \mathbb{Z}$ . What is the analogous statement if 4 is replaced by an arbitrary  $m \geq 2$ ?

**Exercise 3.** Textbook exercise 1.13

**Exercise 4.** Textbook exercise 1.14