

# Computational Number Theory

## HW 1

Due Date: 21/01/2024

1. Find an integer solution of  $6x + 10y = 2$ .
2. Find an integer solution of  $6x + 10y + 15z = 1$ .
3. Show that if  $a, m, n$  are natural numbers with  $a > 1$ , then

$$\gcd(a^m - 1, a^n - 1) = a^{\gcd(m, n)} - 1.$$

4. Describe all integer solutions of  $2x + 3y + 5z = 0$ .