Number Theory
Fall 2020

Assignment 2.1
Due September 9

Exercise 1. Let $a \in \mathbb{Z}$. Show that for any $n \in \mathbb{Z}$, $(a, a+n)$ divides n. Conclude that $(a, a+1) = 1$.

Exercise 2. Use the Euclidean Algorithm to find integers r and s satisfying the following:

a. $(24, 138) = 24r + 138s$.

b. $(119, 272) = 119r + 272s$.

c. $(1769, 2378) = 1769r + 2378s$.

Exercise 3. Let $a, b, c \in \mathbb{Z}$. Prove that if $(a, b) = 1$ and $c|(a+b)$, then $(a, c) = (b, c) = 1$.