

Problem Set 6

October 21, 2024

Problem 1. Let m, n be two integers satisfying $\gcd(m, n) = 1$. Suppose that $a \equiv b \pmod{m}$ and $a \equiv b \pmod{n}$. Show that $a \equiv b \pmod{mn}$.

Problem 2. Prove Chinese Remainder Theorem at the end of Lecture 17.

(We have two parts for the theorem: the existence and the uniqueness. In lecture 17, we showed the map $f : A \rightarrow M$ is surjective. The proof is similar to that of the existence part.)