CS113/DISCRETE MATHEMATICS-SPRING 2024

Worksheet 29

Topic: Primes and Greatest Common Divisors

In today's session, we will delve into two fundamental mathematical concepts: Primes and Greatest Common Divisors (GCD). Additionally, we will explore the Euclidean Algorithm, a historic and effective technique for determining the GCD by repeatedly subtracting the smaller number from the larger one until one of them reaches zero. Happy Learning!

Student's Name and ID: _____

Instructor's name: _____

1. Use the Euclidean algorithm to find:
   (a) gcd(100, 101)

(b) gcd(1529, 14038)

2. Use the extended Euclidean algorithm to express gcd(26, 91) as a linear combination of 26 and 91.

3. Use the extended Euclidean algorithm to express gcd(144, 89) as a linear combination of 144 and 89.

4. Show that $a^m + 1$ is composite if a and m are integers greater than 1 and m is odd.