

Math 2200. Discrete Mathematics.
10.07.08

Problem 1. By computing the prime factorizations, find $\gcd(92928, 123552)$ and $\text{lcm}(92928, 123552)$ and verify that $\gcd(92928, 123552) \cdot \text{lcm}(92928, 123552) = 92928 \cdot 123552$.

Problem 2. Use the Euclidean algorithm to compute the gcd of 123 and 2347.

Problem 3. Find an inverse of 19 modulo 141.

Problem 4. In the first century, the Chinese mathematician Sun-Tsu asked: “There are certain things whose number is unknown. When divided by 3, the remainder is 2; when divided by 5, the remainder is 3; and when divided by 7, the remainder is 2. What will be the number of things?”

Problem 5. Sum 123684 and 413456 using modular arithmetic mod $99 \cdot 98 \cdot 97 \cdot 95$ and the Chinese remainder theorem.