Modular Arithmetic

- (a + b) % m = (a % m) + (b % m) % m
    - 3 + 4 % 2
        - 1/2 + 3/2 -> 1+3/2 = 4
    - 10 + 28 % 5
    - 39 + 44 % 5 -> 3 (83 % 5)
- (a x b) % m = ab / m = abm^-1
    - a%m x b%m
- %: Modulus Function -> a / b returns the remainder -> 3 % 2 = 1
    - result is always going to be between 0 and b-1

GCD and LCM

- Greatest Common Denominator/Divisor and Lowest Common Multiple
    - LCM -> (a x b)/ (GCD(a, b)

Sieve of Erastosthenes

- Algorithm to find prime number -> number with only 2 factors (1 and itself)

Combinations and Permutations

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Bitwise Operations

- Decimal 0-9 -> 54
- 54

- Binary 0-1 -> 54 r22 r6 r2

2 , 4, 8, 16, 32, 64, 128, 256

11011 -> 11 011 - 1 -> >0

000001 -> 1 -1 -> 0

  - Check if a number is a power of 2