

Computer Science Club

2015-2016

Problem: Prime Factorization

Difficulty: Moderate

Goal: Find the prime factorization of 2055482

Directions: In number theory, the fundamental theorem of arithmetic states that every integer greater than 1 either is prime itself or is the product of prime numbers (considered to be the number's prime factorization). Create a program that prints a number's prime factorization.

The prime factorization of 30 is [2, 3, 5] because $2 \times 3 \times 5 = 30$ and 2, 3, and 5 are primes.

The prime factorization of 40 is [2, 2, 2, 5] because $2 \times 2 \times 2 \times 5 = 40$ and 2 and 5 are primes.

What is the prime factorization of 2,055,482 ?