

Name \_\_\_\_\_

## Cracking the Code: The Fascinating World of the Fundamental Theorem of Arithmetic

### Multiple Choice Questions

1. What does the Fundamental Theorem of Arithmetic state?
  - a) Every integer can be expressed as a sum of prime numbers.
  - b) Every integer can be expressed as a quotient of prime numbers.
  - c) Every integer can be expressed as a product of prime numbers.
  - d) Every integer can be expressed as a difference of prime numbers.
  
2. What is unique about the prime factorization of a number according to the theorem?
  - a) It can have multiple prime factorizations.
  - b) It can have no prime factorization.
  - c) It can have a prime factorization with non-prime numbers.
  - d) It has a unique prime factorization.
  
3. Why is the Fundamental Theorem of Arithmetic significant?
  - a) It allows for multiple interpretations of prime factorization.
  - b) It forms the foundation for many concepts in algebra.
  - c) It ensures the security of digital information.
  - d) It provides a unique prime factorization for every integer.
  
4. What field of study benefits from the Fundamental Theorem of Arithmetic in securing information?
  - a) Botany
  - b) Cryptography
  - c) Astronomy
  - d) Geography
  
5. How does the Fundamental Theorem of Arithmetic contribute to understanding the structure of numbers?
  - a) By revealing the patterns in prime factorizations
  - b) By creating chaos in numerical systems
  - c) By making numbers more complicated
  - d) By introducing randomness into calculations

