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Prime And Composite Numbers Worksheets

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Part 1: Building a Foundation

Which of the following numbers is a prime number?

Hint: Remember that a prime number has exactly two distinct positive divisors.

◯ A) 4
◯ B) 9
◯ C) 11
◯ D) 15

Select all the composite numbers from the list below:

Hint: Composite numbers have more than two divisors.

☐ A) 2
☐ B) 6
☐ C) 13
☐ D) 18

Define a prime number in your own words.

Hint: Consider the number of divisors a prime number has.

List two examples of prime numbers and two examples of composite numbers.

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Hint: Think of numbers you know that fit each category.

1. Prime Number 1

[   ]

2. Prime Number 2

[   ]

3. Composite Number 1

[   ]

4. Composite Number 2

[   ]

Which statement is true about the number 1?

Hint: Consider the definitions of prime and composite numbers.

◯ A) It is a prime number.
◯ B) It is a composite number.
◯ C) It is neither prime nor composite.
◯ D) It is both prime and composite.

Part 2: Comprehension and Application

Which of the following statements are true about composite numbers?

Hint: Think about the properties of composite numbers.

☐ A) They have exactly two divisors.
☐ B) They can be expressed as a product of prime numbers.
☐ C) They are always even numbers.
☐ D) They have more than two divisors.

Explain why the number 2 is considered a special prime number.

Hint: Consider its properties compared to other prime numbers.

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What is the prime factorization of 28?

Hint: Break down the number into its prime factors.

○ A) 2 × 14
○ B) 2 × 2 × 7
○ C) 4 × 7
○ D) 2 × 2 × 2 × 3

Find the prime factorization of 60 and list the prime factors.

Hint: Use division by prime numbers to find the factors.

1. Prime Factorization

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2. Prime Factors

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Describe a real-world scenario where identifying prime numbers might be useful.

Hint: Think about applications in technology or security.

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If a number is divisible by both 2 and 3, which of the following must it also be divisible by?

Hint: Consider the least common multiple of 2 and 3.

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○ A) 5
○ B) 6
○ C) 9
○ D) 12

Part 3: Analysis, Evaluation, and Creation

Analyze the following numbers and select those that are prime:

Hint: Check each number for divisibility.

☐ A) 17
☐ B) 21
☐ C) 23
☐ D) 25

Explain how the fundamental theorem of arithmetic applies to the number 45.

Hint: Consider the unique factorization of numbers.

Which of the following is a correct analysis of the number 30?

Hint: Consider the number of divisors and its factorization.

○ A) It is a prime number.
○ B) It has more than two divisors.
○ C) It cannot be factored into prime numbers.
○ D) It is neither prime nor composite.

Evaluate the importance of prime numbers in modern cryptography and provide an example.

Hint: Think about how prime numbers are used in encryption algorithms.

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Create a composite number using the prime numbers 3, 5, and 7, and explain your process.

Hint: Think about how to combine these primes.

1. Composite Number

2. Process Explanation

Which of the following statements best evaluates the role of prime numbers in mathematics?

Hint: Consider the applications of prime numbers beyond basic arithmetic.

○ A) They are only important for basic arithmetic.
○ B) They have no significant applications.
○ C) They are fundamental to number theory and cryptography.
○ D) They are rarely used in advanced mathematics.

Propose a method to quickly determine if a number less than 100 is prime, and explain your reasoning.

Hint: Consider the divisibility rules for small numbers.

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