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Greatest Common Factor Worksheets Answer Key PDF

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Part 1: Building a Foundation

What is the Greatest Common Factor (GCF) of 12 and 18?

undefined. 2

undefined. 3

undefined. 6 ✓

undefined. 9

The GCF of 12 and 18 is 6.

Which of the following methods can be used to find the GCF?

undefined. Prime Factorization ✓

undefined. Euclidean Algorithm ✓

undefined. Listing Multiples ✓

undefined. Listing Factors ✓

Prime Factorization, Euclidean Algorithm, Listing Multiples, and Listing Factors can all be used to find the GCF.

Explain in your own words what the Greatest Common Factor is and why it is important in mathematics.

The GCF is the largest number that divides two or more numbers without leaving a remainder, and it is important for simplifying fractions and solving problems involving ratios.

List the prime factors of the following numbers:

1. a) 28

2, 7

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2. b) 45
3, 5

The prime factors of 28 are 2 and 7; the prime factors of 45 are 3 and 5.

Part 2: Understanding and Interpretation

Which statement is true about the GCF of two prime numbers?

undefined. It is always 1. ✓
undefined. It is the product of the two numbers.
undefined. It is the sum of the two numbers.
undefined. It is always 0.

The GCF of two prime numbers is always 1.

If the GCF of two numbers is 1, what can be said about these numbers?

undefined. They are both even.
undefined. They are both odd.
undefined. They are relatively prime. ✓
undefined. They are multiples of each other.

If the GCF is 1, the numbers are relatively prime.

Describe how the Euclidean Algorithm works for finding the GCF of two numbers.

The Euclidean Algorithm involves repeatedly subtracts the smaller number from the larger number until the two numbers are equal, which will be the GCF.

Part 3: Application and Analysis

What is the GCF of 48 and 180 using prime factorization?

undefined. 6
undefined. 12 ✓

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undefined. 24

undefined. 36

The GCF of 48 and 180 using prime factorization is 12.

Which of the following pairs of numbers have a GCF of 4?

undefined. 16 and 20 ✓

undefined. 8 and 12

undefined. 10 and 14

undefined. 18 and 22

The pairs 16 and 20 have a GCF of 4.

Use the Euclidean Algorithm to find the GCF of 56 and 98. Show your work.

Using the Euclidean Algorithm, the GCF of 56 and 98 is 14.

Part 4: Evaluation and Creation

If the GCF of two numbers is equal to one of the numbers, what can be concluded about the other number?

undefined. It is a multiple of the first number. ✓

undefined. It is a prime number.

undefined. It is an even number.

undefined. It is zero.

If the GCF is equal to one of the numbers, the other number is a multiple of that number.

Analyze the following pairs and determine which have a GCF greater than 1:

undefined. 15 and 25 ✓

undefined. 9 and 28

undefined. 21 and 35 ✓

undefined. 11 and 17

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The pairs 15 and 25, and 21 and 35 have a GCF greater than 1.

Break down the process of finding the GCF of 84 and 126 using both the listing factors method and the prime factorization method. Compare the results.

Using both methods, the GCF of 84 and 126 is 42.

Which method is generally more efficient for finding the GCF of large numbers?

undefined. Listing Factors

undefined. Prime Factorization

undefined. Euclidean Algorithm ✓

undefined. Guess and Check

The Euclidean Algorithm is generally more efficient for large numbers.

Evaluate the following statements and select those that are true:

undefined. The GCF of any number and 1 is always 1. ✓

undefined. The GCF of two even numbers is always even. ✓

undefined. The GCF of two odd numbers is always odd.

undefined. The GCF of a number and zero is the number itself. ✓

The true statements are: The GCF of any number and 1 is always 1, the GCF of two even numbers is always even, and the GCF of a number and zero is the number itself.

Create a real-world problem where finding the GCF is necessary. Describe the problem and explain how the GCF helps solve it.

An example could be sharing 24 apples and 36 oranges among friends, where the GCF helps determine the largest number of equal groups.

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