

## GCF Worksheets Answer Key PDF

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### Part 1: Building a Foundation

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**What does GCF stand for?**

**undefined. Greatest Common Factor ✓**

undefined. Greatest Common Fraction

undefined. Greatest Common Formula

undefined. Greatest Common Function

GCF stands for Greatest Common Factor.

**Which of the following are methods to find the GCF?**

**undefined. Prime Factorization ✓**

**undefined. Listing Factors ✓**

**undefined. Euclidean Algorithm ✓**

undefined. Polynomial Division

Methods to find GCF include Prime Factorization, Listing Factors, and the Euclidean Algorithm.

**Explain why the GCF is important in simplifying fractions.**

**The GCF is important because it allows us to simplify fractions to their lowest terms.**

**List the first three steps in finding the GCF using prime factorization.**

1. Step 1

**Factor each number into primes.**

2. Step 2

**Identify common prime factors.**

### 3. Step 3

#### **Multiply the common prime factors.**

The first three steps include: 1) Factor each number into primes, 2) Identify common prime factors, 3) Multiply the common prime factors.

#### **What is the primary use of the Euclidean Algorithm in relation to GCF?**

undefined. To find the smallest factor

undefined. To simplify equations

**undefined. To determine the greatest common factor ✓**

undefined. To solve quadratic equations

The primary use of the Euclidean Algorithm is to determine the greatest common factor.

## **Part 2: Application and Analysis**

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#### **What is the GCF of 24 and 36?**

undefined. 6

undefined. 8

**undefined. 12 ✓**

undefined. 18

The GCF of 24 and 36 is 12.

#### **Identify the GCF of the following pairs of numbers:**

**undefined. 15 and 25 ✓**

**undefined. 9 and 12 ✓**

**undefined. 14 and 21 ✓**

**undefined. 8 and 32 ✓**

The GCFs are: 15 and 25 (5), 9 and 12 (3), 14 and 21 (7), 8 and 32 (8).

**A teacher wants to divide 48 pencils and 60 erasers into the largest possible equal groups without any leftovers. How many groups can the teacher make, and how many items will each group contain?**

The teacher can make 12 groups, with each group containing 4 pencils and 5 erasers.

If the GCF of two numbers is equal to one of the numbers, what does this imply about the numbers?

undefined. One is a multiple of the other ✓

undefined. They are both prime

undefined. They are equal

undefined. They are both even

It implies that one number is a multiple of the other.

Which of the following statements correctly describe the relationship between GCF and LCM?

undefined. GCF is always smaller than LCM. ✓

undefined. The product of GCF and LCM equals the product of the numbers. ✓

undefined. GCF is always a factor of LCM. ✓

undefined. LCF is always a multiple of GCF.

The correct statements are: The product of GCF and LCM equals the product of the numbers, and GCF is always a factor of LCM.

Analyze how the Euclidean Algorithm simplifies the process of finding the GCF compared to listing factors.

The Euclidean Algorithm simplifies the process by reducing the numbers quickly, while listing factors can be time-consuming.

### Part 3: Evaluation and Creation

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

undefined. Prime Factorization

undefined. Listing Factors

undefined. Euclidean Algorithm ✓

undefined. Trial and Error

The Euclidean Algorithm is generally more efficient for large numbers.

**Given the numbers 18, 24, and 30, which of the following are common factors?**

undefined. 2 ✓

undefined. 3 ✓

undefined. 6 ✓

undefined. 9

The common factors are 2, 3, and 6.

**Create a real-world problem that involves finding the GCF, and explain how solving for the GCF provides a solution.**

**A real-world problem could involve dividing items into equal groups, and finding the GCF helps determine the size of each group.**

**Evaluate the advantages and disadvantages of using prime factorization versus the Euclidean Algorithm for finding the GCF. Provide at least one advantage and one disadvantage for each method.**

1. Prime Factorization Advantage

**Thorough and provides complete factorization.**

2. Prime Factorization Disadvantage

**Can be time-consuming for large numbers.**

3. Euclidean Algorithm Advantage

**Very efficient for large numbers.**

4. Euclidean Algorithm Disadvantage

**Less intuitive for beginners.**

Prime factorization is thorough but can be tedious, while the Euclidean Algorithm is efficient but may be less intuitive.