

## Greatest Common Factor Worksheets

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### Part 1: Building a Foundation

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

*Hint: Consider the factors of both numbers.*

- 2
- 3
- 6
- 9

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

*Hint: Think about different strategies for finding common factors.*

- Prime Factorization
- Euclidean Algorithm
- Listing Multiples
- Listing Factors

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

*Hint: Consider its definition and applications.*

**List the prime factors of the following numbers:**

*Hint: Use factor trees or division to find prime factors.*

1. a) 28

2. b) 45

## Part 2: Understanding and Interpretation

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

*Hint: Consider the properties of prime numbers.*

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

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

*Hint: Think about the relationship between the numbers.*

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

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

*Hint: Think about the steps involved in the algorithm.*

### Part 3: Application and Analysis

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

*Hint: Find the prime factors of both numbers.*

- 6
- 12
- 24
- 36

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

*Hint: Consider the factors of each pair.*

- 16 and 20
- 8 and 12
- 10 and 14
- 18 and 22

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

*Hint: Write down the steps of the algorithm.*

## Part 4: Evaluation and Creation

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

*Hint: Think about the relationship between multiples.*

- It is a multiple of the first number.
- It is a prime number.
- It is an even number.
- It is zero.

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

*Hint: Consider the factors of each pair.*

- 15 and 25
- 9 and 28
- 21 and 35
- 11 and 17

**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.**

*Hint: Consider the steps involved in each method.*

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

*Hint: Think about the complexity of each method.*

- Listing Factors
- Prime Factorization
- Euclidean Algorithm
- Guess and Check

**Evaluate the following statements and select those that are true:**

*Hint: Consider the properties of GCF.*

- The GCF of any number and 1 is always 1.
- The GCF of two even numbers is always even.
- The GCF of two odd numbers is always odd.
- 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.**

*Hint: Think about situations involving groups or sharing.*