Factoring Greatest Common Factor Worksheet

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Part 1: Foundational Knowledge

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

Hint: Consider the factors of both numbers.

- ◯ A) 2
- ◯ B) 3
- ◯ C) 6
- ◯ D) 9

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

Hint: Think about different strategies for finding common factors.

- ☐ A) Prime Factorization
- ☐ B) Listing Factors
- ☐ C) Euclidean Algorithm
- ☐ D) Polynomial Division

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

Hint: Consider its role in simplifying fractions and solving problems.

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List the prime factors of 24 and 36.

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

1. Prime factors of 24

2. Prime factors of 36

Which of the following is NOT a use of the GCF?

Hint: Think about the applications of GCF in mathematics.

- ◯ A) Simplifying fractions
- ◯ B) Solving linear equations
- ◯ C) Factoring polynomials
- ◯ D) Equal distribution in real-world problems

Part 2: comprehension

Which statements are true about the GCF?

Hint: Consider the properties of the GCF.

- ☐ A) It is always less than or equal to the smallest number.
- ☐ B) It can be used to simplify fractions.
- ☐ C) It is the product of all common prime factors.
- ☐ D) It is always greater than or equal to the largest number.

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Describe how you would use the Euclidean Algorithm to find the GCF of 56 and 98.

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What is the GCF of a number and itself?

Hint: Consider the definition of GCF.

- ◯ A) 0
- ◯ B) 1
- ◯ C) The number itself
- ◯ D) Cannot be determined

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Part 3: Application and Analysis

A recipe calls for 12 cups of flour and 18 cups of sugar. What is the largest batch size you can make using the GCF, and how much of each ingredient will you use?

Hint: Use the GCF to determine the batch size.

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Hint: Use the GCF to determine the maximum batch size.

If you simplify the fraction 42/56 using the GCF, what is the resulting fraction?

Hint: Find the GCF of the numerator and denominator.

- ◯ A) 3/4
- ◯ B) 6/7
- ◯ C) 5/8
- ◯ D) 7/8

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If you simplify the fraction 42/56 using the GCF, what is the resulting fraction?

Hint: Find the GCF and divide both the numerator and denominator.

- ◯ A) 3/4
- ◯ C) 5/8
- ◯ D) 7/8
- ◯ C) 6/7

Analyze the relationship between the GCF and the Least Common Multiple (LC M) of two numbers. How are they connected?

Hint: Consider how GCF and LCM are used in mathematics.

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Which of the following pairs of numbers have a GCF of 1, indicating they are coprime?

Hint: Think about pairs of numbers that share no common factors.

- [ ] A) 14 and 21
- [ ] B) 15 and 28
- [ ] C) 9 and 27
- [ ] D) 10 and 25

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Part 4: Evaluation and Creation

Evaluate the effectiveness of using the Euclidean Algorithm versus prime factorization for finding the GCF of large numbers. Which method do you find more efficient and why?

Hint: Consider the pros and cons of each method.

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After factoring the polynomial 3x^2 + 6x, what is the GCF of the terms?

Hint: Look for the largest common factor in the coefficients.

◯ A) x

- ◯ B) 3
- ◯ C) 3x
- ◯ D) 6

After factoring the polynomial 3x^2 + 6x, what is the GCF of the terms?

Hint: Consider the coefficients and variables involved.

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- ◯ C) 3x
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