Factoring Greatest Common Factor Worksheet Questions and Answers PDF

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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

> The GCF of 12 and 18 is 6.

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

> All listed methods can be used to find the GCF.

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- [ ] **C) Euclidean Algorithm ✓**
- [ ] D) Polynomial Division
- [ ] **C) Listing Factors ✓**

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

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.

The GCF is the largest number that divides two or more numbers without a remainder, important for simplifying fractions and finding common denominators.

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

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

> **The GCF is the largest number that divides two or more numbers without a remainder, important for simplification.**

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

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

> **The GCF is the largest number that divides two or more numbers without leaving a remainder, important for simplifying fractions.**

List the prime factors of 24 and 36.

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

1. Prime factors of 24

> 2, 2, 2, 3

2. Prime factors of 36

> 2, 2, 3, 3

> The prime factors of 24 are 2, 2, 2, 3 and for 36 are 2, 2, 3, 3.

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

> Solving linear equations is not a direct use of the GCF.

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.

> The GCF is always less than or equal to the smallest number and can be used to simplify fractions.

Which statements are true about the GCF?

Hint: Consider the properties of GCF.

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

> Statements A and B are true about the GCF.

Which statements are true about the GCF?

Hint: Consider the properties of GCF.

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

> The GCF is always less than or equal to the smallest number and can be used to simplify fractions.

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

Hint: Think about the steps involved in the algorithm.

The Euclidean Algorithm involves repeated division and finding remainders until reaching a remainder of 0.

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

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The Euclidean Algorithm involves repeated division to find the GCF.

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Hint: Think about the steps involved in the algorithm.

The Euclidean Algorithm involves repeated division to find the GCF.

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

> The GCF of a number and itself is the number itself.

What is the GCF of a number and itself?

Hint: Consider the definition of GCF.

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

> The GCF of a number and itself is the number itself.

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.

The largest batch size is 6 cups, using 2 cups of flour and 3 cups of sugar.

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 maximum batch size.

The largest batch size is 6 cups of flour and 9 cups of sugar.

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 maximum batch size.

The largest batch size is 6 cups, using 6 cups of flour and 9 cups of sugar.

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

> The resulting fraction is 3/4.

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

> The resulting fraction is 3/4.

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

> The resulting fraction is 3/4.

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.

The GCF and LCM are related through the product of two numbers, where GCF × LCM = product of the numbers.

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 together.

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The GCF and LCM are related through the product of two numbers.

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

> The pair 15 and 28 have a GCF of 1, indicating they are coprime.

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

Hint: Think about pairs of numbers with no common factors.

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

> The pair 15 and 28 are coprime.

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

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

> Pairs with a GCF of 1 are coprime.

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.

> **The Euclidean Algorithm is often more efficient for large numbers.**

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.

The Euclidean Algorithm is often more efficient for large numbers compared to prime factorization, which can be cumbersome.

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.

The Euclidean Algorithm is often more efficient for large numbers compared to prime factorization.

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

The GCF of the terms is 3x.

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

Hint: Consider the coefficients and variables involved.

- ◯ A) x
- ◯ **C) 3x ✓**
- ◯ D) 6
- ◯ C) 3

> The GCF of the terms is 3x.

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

Hint: Consider the coefficients and variables.

- ◯ A) x
- ◯ C) 3
- ◯ D) 6
- ◯ **C) 3x ✓**

> The GCF of the terms is 3x.