Factoring Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the primary purpose of factoring in algebra?

undefined. To simplify expressions ✓

undefined. To multiply expressions

undefined. To divide expressions

undefined. To add expressions

The primary purpose of factoring is to simplify expressions.

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Which of the following are types of factoring methods? (Select all that apply)

undefined. Greatest Common Factor (GCF) ✓

undefined. Polynomial Division ✓

undefined. Factoring by Group ✓

undefined. Completing the Square

The types of factoring methods include GCF, Polynomial Division, and Factoring by Group.

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The types of factoring methods include GCF, Polynomial Division, and Factoring by Group.

Explain the difference between a monomial and a binomial.

A monomial has one term, while a binomial has two terms.

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List two special factoring formulas.

1. Difference of squares
a^2 - b^2 = (a + b)(a - b)

2. Perfect square trinomial
(a + b)^2 = a^2 + 2ab + b^2

Two special factoring formulas are the difference of squares and the perfect square trinomial.

Part 2: comprehension and Application

When factoring the expression x^2 - 9, which steps are involved? (Select all that apply)

undefined. Identify it as a difference of squares ✓
undefined. Use the quadratic formula
undefined. Write it as (x + 3)(x - 3) ✓
undefined. Combine like terms

The steps involved include identifying it as a difference of squares and writing it as (x + 3)(x - 3).

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The steps involved include identifying it as a difference of squares and writing it as (x + 3)(x - 3).

Factor the trinomial x^2 + 5x + 6 and verify your result by expanding the factors.

The trinomial factors to (x + 2)(x + 3), and expanding these factors will yield the original trinomial.

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The trinomial factors to (x + 2)(x + 3).

What is the greatest common factor of the terms in the expression 6x^3 + 9x^2?

undefined. 3x
undefined. 6x^2
undefined. 3x^2 ✓
undefined. 9x

The greatest common factor is 3x^2.

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undefined. 6x^2
undefined. 3x^2 ✓
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The greatest common factor is 3x^2.

Part 3: Analysis, Evaluation, and Creation

Which expression represents the factored form of 4x^2 - 25?

undefined. (2x + 5)(2x - 5) ✓
undefined. (4x + 5)(x - 5)
undefined. (2x + 5)^2
undefined. (4x - 5)^2

The factored form of 4x^2 - 25 is (2x + 5)(2x - 5).

Which expression represents the factored form of 4x^2 - 25?

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undefined. (4x - 5)^2

The factored form is (2x + 5)(2x - 5).

Analyze the expression x^3 - 8. Which of the following are true? (Select all that apply)

undefined. It is a difference of cubes ✓
undefined. It can be factored as (x - 2)(x^2 + 2x + 4) ✓
undefined. It is a perfect square trinomial
undefined. It cannot be factored further

The expression is a difference of cubes and can be factored as (x - 2)(x^2 + 2x + 4).

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undefined. It cannot be factored further

It is a difference of cubes and can be factored as (x - 2)(x^2 + 2x + 4).

Create a real-world scenario where factoring is used to solve a problem, and explain the solution process.

An example could be calculating the area of a rectangular garden where factoring helps find dimensions.

Create a real-world scenario where factoring is used to solve a problem, and explain the solution process.

An example could be using factoring to determine the dimensions of a rectangular area.

Propose two different expressions that can be factored using the difference of squares method.

1. x^2 - 16

(x + 4)(x - 4)

2. 9y^2 - 25

(3y + 5)(3y - 5)

Examples include x^2 - 16 and 9y^2 - 25.