Polynomial Vocabulary Worksheet Questions and Answers PDF

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Part 1: Building a Foundation

What is a polynomial?

Hint: Think about the definition involving terms and exponents.

- ◯ An expression with only one term
- ◯ **An expression involving variables and coefficients with non-negative integer exponents ✓**
- ◯ An equation with an equal sign
- ◯ A number without variables

> A polynomial is an expression involving variables and coefficients with non-negative integer exponents.

Which of the following are components of a polynomial?

Hint: Consider the parts that make up a polynomial expression.

- ☐ **Coefficient ✓**
- ☐ **Variable ✓**
- ☐ **Exponent ✓**
- ☐ Fraction

> Components of a polynomial include coefficients, variables, and exponents.

Explain the difference between a monomial and a binomial.

Hint: Consider the number of terms in each expression.

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

List the types of polynomials based on the number of terms.

Hint: Think about the names given to polynomials with different numbers of terms.

1. What is a monomial?

A polynomial with one term.

2. What is a binomial?

A polynomial with two terms.

3. What is a trinomial?

A polynomial with three terms.

Types of polynomials include monomial, binomial, and trinomial.

What is the degree of the polynomial 3x^4 + 2x^3 - x + 7?

Hint: Look for the highest exponent in the polynomial.

- ◯ 1
- ◯ 2

- ◯ 3
- ◯ **4 ✓**

> The degree of the polynomial is 4, which is the highest exponent.

Part 2: Understanding and Interpretation

Which of the following statements about the degree of a polynomial is true?

Hint: Consider the definition of the degree of a polynomial.

- ☐ It is the sum of all exponents in the polynomial.
- ☐ **It is the highest exponent of the variable in the polynomial. ✓**
- ☐ It is always an even number.
- ☐ It is the number of terms in the polynomial.

> The degree of a polynomial is the highest exponent of the variable in the polynomial.

Describe how to convert a polynomial into its standard form.

Hint: Think about the order of terms based on their degrees.

> **To convert a polynomial into standard form, arrange the terms in descending order of their exponents.**

What is the standard form of the polynomial 2x + 5x^3 - 4x^2?

Hint: Rearrange the terms by their degrees.

- ◯ **5x^3 - 4x^2 + 2x ✓**
- ◯ 2x - 4x^2 + 5x^3
- ◯ 5x^3 + 2x - 4x^2
- ◯ 2x + 5x^3 - 4x^2

The standard form of the polynomial is 5x^3 - 4x^2 + 2x.

Part 3: Application and Analysis

Apply the distributative property to expand the expression (x + 3)(x - 2).

Hint: Use the FOIL method for binomials.

The expanded form of the expression is x^2 + x - 6.

Which of the following is the result of multiplying (x + 1)(x - 1)?

Hint: Consider the difference of squares.

- [ ] x^2 + 1
- [ ] **x^2 - 1 ✓**
- [ ] x^2 - 2x + 1
- [ ] x^2 + 2x + 1

The result of multiplying (x + 1)(x - 1) is x^2 - 1.

If a polynomial P(x) = x^2 - 5x + 6, what are its roots?

Hint: Use the quadratic formula or factorization.

- ◯ **2 and 3 ✓**
- ◯ -2 and -3
- ◯ 1 and 6
- ◯ -1 and -6

The roots of the polynomial are 2 and 3.

Analyze the polynomial x^3 - 6x^2 + 11x - 6 and determine its roots using factorization.

Hint: Look for factors of the polynomial.

The roots can be found by factoring the polynomial into (x - 1)(x - 2)(x - 3).

Which of the following expressions is a perfect square trinomial?

Hint: Consider the form of a perfect square trinomial.

- [ ] **x^2 + 4x + 4 ✓**
- [ ] **x^2 - 4x + 4 ✓**
- [ ] **x^2 + 2x + 1 ✓**
- [ ] **x^2 - 2x + 1 ✓**

Expressions like x^2 + 4x + 4 and x^2 - 4x + 4 are perfect square trinomials.

Part 4: Evaluation and Creation

Evaluate the polynomial P(x) = 2x^3 - 3x^2 + x - 5 at x = 2.

Hint: Substitute x = 2 into the polynomial.

Evaluating the polynomial at x = 2 gives P(2) = 2(2)^3 - 3(2)^2 + 2 - 5 = 1.

Create a polynomial of degree 3 with roots 1, -2, and 3. Write it in standard form.

Hint: Use the roots to form factors of the polynomial.

1. What is the polynomial in standard form?

> x^3 - 2x^2 - 5x + 6

> The polynomial can be written as P(x) = (x - 1)(x + 2)(x - 3) = x^3 - 2x^2 - 5x + 6.

Which of the following polynomials can be factored as (x - 2)(x + 3)?

Hint: Expand the factors to find the polynomial.

- ◯ **x^2 + x - 6 ✓**
- ◯ x^2 - x - 6
- ◯ x^2 + 5x + 6
- ◯ x^2 - 5x + 6

> The polynomial that can be factored as (x - 2)(x + 3) is x^2 + x - 6.