What is a Polynomial?

Worksheet

A polynomial is an expression of the form ax + ... + ax + a, where each term has a variable raised to a whole-number power multiplied by a coefficient, and the highest exponent is called the degree.

$$p(x) = a_n x^n + @cdots + a_1 x + a_0$$

Questions

1. What is the degree of 7x 2x + 5?

A) 7
B) 3
C) 2
D) 5

2. Simplify (2x + 3) + (4x 1).

A) 6x + 2
B) 6x 2
C) 8x + 2
D) 2x + 4

3. Which of these is NOT a polynomial term?

A) 3x
B) 5x
C) 2/x
D) 7

4. What is the leading coefficient of 4x + 2x 9?

A) 5
B) 2
C) 9
D) 4

5. Add the polynomials (3x + 2x 1) and (x 5x + 4).

6. Multiply (x + 2)(x 3).

7. Find the degree of 5x 3x + 7x 1.

8. Define: What is a polynomial?

9. Define: What is the degree of a polynomial?

10. Define: What is a monomial, binomial, and trinomial?

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Answer Key

1. B) 3 - The highest exponent is 3, so the degree is 3.
2. A) 6x + 2 - Combine like terms: (2x+4x) + (31) = 6x + 2.
3. C) 2/x - 2/x = 2x has a negative exponent, which is not allowed in polynomials.
4. D) 4 - The leading coefficient is the coefficient of the highest-degree term, 4x, which is 4.
5. Group like terms: (3x+x) + (2x5x) + (1+4) Combine: 4x 3x + 3 Result: 4x 3x + 3
6. Apply FOIL: xx + x(3) + 2x + 2(3) Simplify: x 3x + 2x 6 Combine: x x 6
7. Identify the exponents: 4, 2, 1, 0 The degree is the highest exponent Degree = 4
8. An algebraic expression with variables raised to whole-number powers, combined with coefficients using +, , and .
9. The highest exponent of the variable in the expression.
10. A monomial has 1 term, a binomial has 2 terms, and a trinomial has 3 terms.

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