

3.3 - Introduction to Polynomials

What is a term?

What is a coefficient?

Complete the following table for the expression: $-6x^6 + 4x^5 + 7x^3 - 9x^2 - 1$

Terms	Coefficient

What is a polynomial?

Note:

What is a monomial?

What is a binomial?

What is a trinomial?

Degrees of terms and polynomials

What is the degree of a term with one variable?

What is the degree of a term with several variables?

Examples:

Find the degree of each term of the trinomial $-15x^3 + 2x^2 - 5$

Find the degree of each term of the trinomial $-2x^3y^2 + 4 - 8xy + 3x^3y + 5xy^2$

What is the degree of a polynomial in one variable?

What is the degree of a polynomial with several variables?

Examples:

Find the degree of each polynomial and tell whether the polynomial is a monomial, binomial, trinomial or none of these.

- $-6x + 14$
- $9x - 3x^6 + 5x^4 + 2$
- $10x^2 - 6x - 6$
- $-2x^3y^2 + 4 - 8xy + 3x^3y + 5xy^2$

More Examples

Evaluate each polynomial when $x = -1$

- $-2x + 10$

- $6x^2 + 11x - 20$

The CN Tower in Toronto, Ontario, is 1821 feet tall and is the world's tallest self-supporting structure. An object is dropped from the top of this building. Neglecting air resistance, the height in feet of the object at time t seconds is given by the polynomial $-16t^2 + 1821$. Find the height of the object when $t = 3$ seconds and when $t = 7$ seconds.

How can we simplify polynomials?

Do you remember what are like terms?

Examples:

Simplify each polynomial by combining any like terms.

1. $11ab - 6a^2 - ba + 8b^2$

2. $7x^2y^2 + 2y^2 - 4y^2x^2 + x^2 - y^2 + 5x^2$

3. $18x^4 + 2x^3y^3 - 1 - 2y^3x^3 - 17x^4$