

6.1 Polynomial Functions

Monomial - one term.

Binomial - two terms.

Trinomial - three terms.

Polynomial - many terms.

Degree - the exponent of a term.

(In a polynomial terms are listed in *decending* order by the degree.)

Degree of a Polynomial - (used to classify polynomials) the largest degree of any term of a polynomial.

***Standard form of a polynomial is written in decending degree order.**

$P(x) = 2x^3 - 5x^2 - 2x + 5$

Diagram illustrating the components of the polynomial $P(x) = 2x^3 - 5x^2 - 2x + 5$:

- Leading coefficient:** 2 (indicated by a pink arrow pointing to the coefficient of the highest degree term).
- Cubic term:** $2x^3$ (indicated by a purple arrow pointing to the term).
- Quadratic term:** $-5x^2$ (indicated by a teal arrow pointing to the term).
- Linear term:** $-2x$ (indicated by a blue arrow pointing to the term).
- Constant term:** 5 (indicated by an orange arrow pointing to the term).
- Degree:** 3 (indicated by a purple arrow pointing to the exponent of the highest degree term).
- Polynomial:** The entire expression $2x^3 - 5x^2 - 2x + 5$ is enclosed in a rounded rectangle and labeled "Polynomial" (indicated by a black arrow pointing to the rectangle).

Degree	Name Using Degree	Polynomial Example	Number of Terms	Name Using Number of Terms
0	constant	6	1	monomial
1	linear	$x + 3$	2	binomial
2	quadratic	$3x^2$	1	monomial
3	cubic	$2x^3 - 5x^2 - 2x$	3	trinomial
4	quartic	$x^4 + 3x^2$	2	binomial
5	quintic	$-2x^5 + 3x^2 - x + 4$	4	polynomial of 4 terms