

Polynomials

Recall that expressions such as $-4.9t^2$, $8.1t$, and 1.2 are called monomials. A **polynomial** is a sum of monomials. Each monomial in a polynomial is called a **term**. A polynomial like $3x^2 + (-5x) + (-2)$ is usually written as $3x^2 - 5x - 2$.

Some polynomials can be classified by the number of their terms.

Monomial (1 term)	Binomial (2 terms)	Trinomial (3 terms)
$-3xyz$	$5x + 1$	$-4b^2 + 6b - 3$
8	$-p^3 - 2p^2$	$2 + 11t - 7t^3$

Example 1: Tell whether the expression is a polynomial. If it is a polynomial, list its terms and classify it.

A. $7m^{-2} + 4$

This expression is not a polynomial. The variable m has an exponent that is not a whole number.

B. $-b$

This expression is a polynomial. The only term is $-b$. because it has one term, it is a monomial.

C. $3x^2 + 8xy - 1$

This expression is a polynomial. The terms are $3x^2$, $8xy$, and -1 . Because it has three terms, it is a trinomial.

Degree: The **degree of a term** is the sum of the exponents of its variables. The **degree of a polynomial** is the greatest degree of its terms. The degree of a nonzero constant is 0. The constant 0 has no degree.

Standard Form: To simplify a polynomial, combine like terms. Remember that like terms are terms with identical variable parts, such as $8ab^2$ and $3ab^2$. A polynomial is written in **standard form** if it is simplified and the terms are arranged so the degree of each term decreases or stays the same from left to right.