1. Monomial

A Number, or a Variable, or the product of Numbers and Variables.

(A single term)

Give four examples of a monomial

Examples: -9, x^2, $8.3x$, $-5x^2y^3$

2. Polynomial

A monomial or the sum of several monomials.

Give two examples of a polynomial

Examples:

$-9a^2 + 3a$

$4m^3n - 3m^2n^2 + 7mn^3 - 1$

3. a. The exponents of a polynomial must be what kind of numbers?

Nonnegative Integers

Whole Numbers

Therefore, exponents can't be negative, decimal, or fractional

b. The coefficients of a polynomial must be what kind of numbers?

Real Numbers

Therefore, no coefficients can be imaginary numbers

4. What does a polynomial in standard form look like?

Terms are written in descending numerical order of the exponents.

This means the constant (if there is one) is always last.

5. The leading coefficient of a polynomial is

The coefficient of the term with the largest exponent when the polynomial is in expanded form.

Only the first coefficient if it is written in Standard Form.

Find the leading coefficient of each polynomial.

1. $3x - 7x^2 + 5 - x^3$

The term with the largest exponent is $-x^3$ and its coeff is -1 so the leading coefficient is -1

2. $(2x + 3)(6 - x)(5x - 1)$

If you expanded this you would multiply $(2x)(-x)(5x)$ to get $-10x^3$ so the leading coefficient is -10

3. $x(3x - 4)^2(x + 8)(7 - 2x)^3$

If you expanded this you would multiply $x(3x)^2(x)(-2x)^3 = x(9x^2)(x)(-8x^3)$ to get $-72x^7$ so the leading coefficient is -72

What will be important for Ch 6 is whether the leading coefficient of a polynomial is POSITIVE or NEGATIVE