Ch4.4 Adding and Subtracting Polynomials

In an expression such as $4x^3 + 6x^2 + 5x + 8$, the quantities$4x^3$, $6x^2$,$5x$, *and* 8 are terms. In the leading (or first) term $4x^3$, the number 4 is the numerical coefficient, or simply the coefficient, of x^3. In the same way, 6, 5, and 8 are the coefficient of the given expression.

Polynomial in x

A **polynomial in x** is a term or the sum of a finite number of terms of the form

ax^n, for any real number a and any whole number n.

A polynomial with only one term is a **monomial.** (*Mono-* means "one," as in *mono*rail.) A polynomial with exactly two terms is a **binomial.** (*Bi-* means "two," as in *bi*cycle.) A polynomial with exactly three terms is a **trinomial.** (*Tri-* means "three," as in *tri*angle.)

$9m$, $-6y^5$, a^2, and 6 — Monomials

$-9x^4 + 9x^3$, $8m^2 + 6m$, and $3m^5 - 9m^2$ — Binomials

$9m^3 - 4m^2 + 6$, $\frac{19}{3}y^2 + \frac{8}{3}y + 5$, and $-3m^5 - 9m^2 + 2$ — Trinomials

Ex1) Name the coefficient.

a) $x - 6x^4$

b) $5 - v^3$

Ex2) Simplify by adding like terms.

a) $-4x^3 + 6x^3$

b) $9x^2 - 14x^6 + x^6$

c) $12m^2 + 5m + 4m^2$

d) $3x^2y + 4x^2y - x^2y + xy^2$