

## Classify by Degree

| Name      | Degree | Example        |
|-----------|--------|----------------|
| constant  | 0      | 4              |
| linear    | 1      | $x-4$          |
| quadratic | 2      | $x^2+3x-1$     |
| cubic     | 3      | $x^3+2x^2+x+1$ |
| quartic   | 4      | $2x^4-3x+1$    |
| quintic   | 5      | $7x^5+3$       |

## Add/Subtract

- Combine like terms

## 6.1 Polynomials

monomial → number or product of numbers & variables with whole number exponents

ex:  $3x^4$ ,  $0.15x^{101}$

nonex:  $m^{0.75}$

degree → sum of the exponents of the variables

polynomial → a monomial or sum or difference of monomials

ex:  $2x^{12}+9x^3$

nonex:  $3x$ ,  $\frac{8}{5}y^2$

degree → highest exponent

leading coefficient → coefficient of the first term when written in standard form.

## Standard form

- written in order from highest degree to lowest degree

## 6.1 Examples

① Identify the degree of the following:

①  $4a^2b$   
deg = 3

②  $x^3y^4z$   
deg = 8

③  $2x + 4x^3 - 1$   
deg = 3

② Rewrite in standard form. Identify the leading coefficient, degree, & # of terms. Name the polynomial.

①  $7x^3 - 11x + x^5 - 2$

Standard:  $x^5 + 7x^3 - 11x - 2$

L.C. : 1

Degree : 5

# of terms / name: 4 / quintic polynomial w/ 4 terms

③ Add or subtract. Write answer in standard form.

①  $(3x^2 + 7 + x) + (14x^3 + 2 + x^2 - x)$

$$\begin{array}{r} 3x^2 + x + 7 \\ + 14x^3 + x^2 - x + 2 \\ \hline 14x^3 + 4x^2 + 9 \end{array}$$

Answer:  $14x^3 + 4x^2 + 9$

②  $(1 - x^2) - (3x^2 + 2x - 5) = (1 - x^2) + (-3x^2 - 2x + 5)$

$$\begin{array}{r} -x^2 + 1 \\ - 3x^2 \\ \hline \end{array}$$

$$\begin{array}{r} -x^2 + 1 \\ + -3x^2 - 2x + 5 \\ \hline -4x^2 - 2x + 6 \end{array}$$

Ans:  $-4x^2 - 2x + 6$