

Sec. 8.1 Add and Subtract Polynomials

Problem 1

Find the **degree** of a monomial. \rightarrow product of a number and variable(s)
 add the exponents of the variables
 number or variable

a. $8xy$ degree: 2

b. $-7y^4z$ degree: $4+1=5$

c. 11 degree: 0

Problem 2: What is the sum or difference?

like terms: everything after the coefficient is the same.

add: add coefficients, keep term

$$3xy^2 + 5xy^2 = 8xy^2$$

$$(3+5)xy^2$$

a. $3x^2 + 7x^2 = 10x^2$

b. $4x^3y - 1x^3y = 3x^3y$

Standard form

highest \rightarrow lowest degree

Polynomial	Degree <small>degree of the monomial with the highest degree</small>	Name	Name (# of terms)
6	0	Constant	1 \rightarrow monomial
$5x + 2$	1	Linear	2 \rightarrow binomial
$4x^2 + 7x + 3$	2	Quadratic	3 \rightarrow trinomial
$2x^3$	3	Cubic	monomial
$8x^4 - 2x^3 + 3x$	4	Quartic	trinomial

Problem 3:

Write in standard form. Name?

a. $2x - 3 + 8x^2$

$$8x^2 + 2x - 3 \quad \text{trinomial}$$

D: 2 \rightarrow quadratic

b. $4x - 1 + 5x^3 + 7x$

$$5x^3 + 11x - 1 \quad \text{trinomial}$$

D: 3 \rightarrow cubic

Problem 4:

a. $8x^2 - 6x + 3$ -Add coef.
 $+ 4x^2 + 8x - 9$ -keep term.

$$12x^2 + 2x - 6$$

b. $(7x^2 - 8x + 6) + (4x^3 - 3x)$

$$4x^3 + 7x^2 - 11x + 6$$

Problem 5:

a. $3x^2 - 2x + 6$
 $-(7x^2 + 3x - 7) \rightarrow$ Distribute
 -1

$$3x^2 - 2x + 6$$
$$-7x^2 - 3x + 7$$

$$-4x^2 - 5x + 13$$

b. $(9x^4 + 2x^3 - 6) \ominus (4x^2 - 2x + 5)$
Distribute -1

$$9x^4 + 2x^3 - 6 - 4x^2 + 2x - 5$$

$$9x^4 + 2x^3 - 4x^2 + 2x - 11$$