

8-1 Practice

Form G

Monomial:

18 z $-4x^2$ $2.5x^2y^3$ $\frac{a}{3}$

Degree of a Monomial: the sum of the exponents of the variable

18 0 degree z 1st degree $-4x^2$ 2nd degree $2.5x^2y^3$ 5th $\frac{a}{3}$ 1st

Example 1: Finding the degree of a Monomial

What is the degree of each monomial?

- a. $5x$ 1st b. $6x^3y^2$ 5th c. 4 0

Example 2: Adding and Subtracting Monomials

What is the sum or difference?

- a. $3x^2 + 5x^2$ $8x^2$ b. $4x^3y - x^3y$ $3x^3y$

Polynomial:

$3x^4 + 5x^2 - 7x + 1$ (Standard Form)
 ↑ 4th ↑ 2nd ↑ 1st ↑ 0
 write the monomial from greatest to least degree

Degree of a Polynomial (in one variable):

Polynomial	Degree	Name by degree	# of terms	Name by # of terms
6	0	Constant	1	Monomial
$5x + 9$	1	linear	2	Binomial
$4x^2 + 7x + 3$	2	Quadratic	3	Trinomial
$2x^3$	3	Cubic	1	Monomial
$8x^4 - 2x^3 + 3x$	4	Fourth degree	3	Trinomial

Example 3: Classifying Polynomials

Write each polynomial in standard form. What is the name of the polynomial based on its degree and number of terms?

a. $3x + 4x^2$

Quadratic, binomial

$4x^2 + 3x$

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

Cubic, trinomial

$5x^3 + 11x - 1$ (combine like terms)
 $4x + 7x = 11x$

1st rewrite in standard form

Example 4: Adding Polynomials

The revenue generated by a company and the cost of producing x units can be modeled by the polynomials below.

Revenue: $2x^2 + 120x$

Cost: $-0.5x^2 - 300x - 8000$

Add the functions to determine the net profit or loss polynomial.

$$\begin{array}{r} 2x^2 + 120x \\ - .5x^2 - 300x - 8000 \\ \hline 1.5x^2 - 180x - 8000 \end{array}$$

Example 5: Subtracting Polynomials

What is a simpler form of $(x^3 - 3x^2 + 5x) - (7x^3 + 5x^2 - 12)$?

$$\begin{array}{r} x^3 - 3x^2 + 5x - 7x^3 - 5x^2 + 12 \\ \hline -6x^3 - 8x^2 + 5x + 12 \end{array}$$