

**LESSON**  
**17-1**

# Understanding Polynomial Expressions

## Reteach

Polynomials have special names based on the number of terms.

POLYNOMIALS				
No. of Terms	1	2	3	4 or more
Name	Monomial	Binomial	Trinomial	Polynomial

The degree of a monomial is the sum of the exponents in the monomial. The degree of a polynomial is the degree of the term with the greatest degree.

### Examples

Find the degree of  $8x^2y^3$ .

$8x^2y^3$  The exponents are 2 and 3.

The degree of the monomial is  $2 + 3 = 5$ .

Find the degree of  $4ab + 9a^3$ .

$\frac{4ab}{2} + \frac{9a^3}{3}$

The degree of the binomial is 3.

Identify each polynomial. Write the degree of each expression.

1.  $7m^3n^5$

2.  $4x^2y^3 + y^4 + 7$

3.  $x^5 - x^5y$

You can simplify polynomials by combining like terms.

The following are like terms:

$4y$  and  $7y$        $8x^2$  and  $2x^2$        $7m^5$  and  $m^5$

same variables raised to same power

The following are **not** like terms:

$3x^2$  and  $3x$        $47$  and  $7y$        $8m$  and  $m^5$

same variable, different exponent

one with variable, one constant

same variable but different power

### Examples

Add  $3x^2 + 4x + 5x^2 + 6x$ .

$3x^2 + 5x^2 + \underline{4x} + \underline{6x}$

$8x^2 + 10x$

Identify and rearrange like terms so they are together.

Combine like terms.

Simplify each expression.

4.  $2y^2 + 3y + 7y + y^2$

5.  $8m^4 + 3m - 4m^4$

6.  $12x^5 + 10x^4 + 8x^4$