Objectives
- Identify, evaluate, add, and subtract polynomials
- Classify and graph polynomials

Vocabulary
- Monomial-
- Polynomial-
- Degree of a monomial-
- Degree of a polynomial-
- Leading coefficient-
- Binomial-
- Trinomial-
- Polynomial function-

Example 1   **Identify the degree of the monomial**

    a) x^4 **b)**   12

        The degree is   **The degree is**

    c) $4a^2b$ **d)** x^3y^4z

        The degree is   **The degree is**

Try it!   **a)** x^4,   **b)**   7,

        The degree is   **The degree is**

    c) $5x^3y^2$,   **d)** a^6bc^2

        The degree is   **The degree is**

Classifying Polynomials by Degree		
Name	Degree	Example
Constant	0	-9
Linear	1	$x - 4$
Quadratic	2	$x^2 + x - 1$
Cubic	3	$x^3 + 2x^2 + x + 1$
Quartic	4	$2x^4 + x^3 + 3x^2 + 4x - 1$
Quintic	5	$7x^5 + 2x^4 + x^3 + 3x^2 + 4x - 1$

Example 2   **Classifying Polynomials**

Rewrite each polynomial in standard form. Then identify the leading coefficient, degree, and number of terms. Name the polynomial.

$2x + 4x^3 - 1$ $7x^3 - 11x + x^5 - 2$

a) write the terms in descending order   a) write the terms in descending order
    by degree   by degree

b) Leading coefficient   b) Leading coefficient

c) Degree   c) Degree

d) Terms   d) Terms

e) Name   e) Name

Try it!   **Classifying Polynomials**

Rewrite each polynomial in standard form. Then identify the leading coefficient, degree, and number of terms. Name the polynomial.

$4x - 2x^2 + 2$ $-18x^2 + 8x^3 - 5 + 2x$

a) write the terms in descending order   a) write the terms in descending order
    by degree   by degree

b) Leading coefficient   b) Leading coefficient

c) Degree   c) Degree

d) Terms   d) Terms

e) Name   e) Name

Example 3   **Adding and Subtracting Polynomials**
Add or subtract. Write your answer in standard form.

a) $\left(3x^2 + 7 + x\right) + \left(14x^3 + 2 + x^2 - x\right)$

b) $\left(1 - x^2\right) - \left(3x^2 + 2x - 5\right)$

Try it!   **Adding and Subtracting Polynomials**
Add or subtract. Write your answer in standard form.

a) $\left(-36x^2 + 6x - 11\right) + \left(6x^2 + 16x^3 - 5\right)$

b) $\left(5x^3 + 12 + 6x^2\right) - \left(15x^2 + 3x - 2\right)$

Homework: 6.1, pg 410 #19-30 all