1. Monomial:

A real number, a variable, or the product of a real number and variables.

a Term

Give three examples of a monomial:

-12, x^2, $9.3a^3b^5$

2. Polynomial:

A monomial or the sum of monomials

A monomial is a polynomial with just one term

Give two examples of a polynomial:

$7w$, $x + 9$, $3y^2 - 8y + 1$

3. a. The exponents of monomials and polynomials must be what kind of numbers?

Whole Numbers

b. The coefficients of a polynomial must be what kind of numbers?

Real Numbers

Definition	Polynomial Function
$P(x) = a_n x^n + a_{n-1}x^{n-1} + \ldots + a_1 x + a_0$	where n is a nonnegative integer and the coefficients $a_n, \ldots, a_0$ are real numbers.

$y = (3x + 1)(x - 8)$ This is called factored form

$y = 3x^2 - 23x - 8$ This is called expanded form

4. What does a polynomial in standard form look like?

Terms are put in descending order using the degree(exponents) with the term having the largest exponent first.

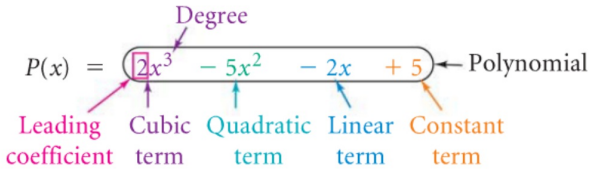
5. The leading coefficient of a polynomial is

The coefficient of the term with the largest exponent.
If it's in Standard Form it will be the first coefficient.

6. The degree of a polynomial is

The largest degree(exponent) of any term after expanding.
If it's in Standard Form it will be the first exponent.

standard form of a polynomial. A one-variable polynomial in standard form has no two terms with the same degree, since all like terms have been combined.



# of terms in polynomial	Name by # of terms
1	Monomial
2	Binomial
3	Trinomial

7. Complete these two tables by filling in the blanks.

Degree of Polynomial	Name by Degree
0	Constant
1	Linear
2	Quadratic
3	Cubic

8. Is each of the below a polynomial? If not give a reason.

a) $y = \frac{3}{7}x^2 + 3x - 14x^4 + 4$

Yes

b) $y = 4x^{-2} + x^3 - \frac{8}{x}$

No, There is a neg exponent and the last term has a variable in the denominator which indicates a negative exponent.

c) $y = 9\sqrt{x} + 3x^7 - x^{\frac{2}{3}}$

No, there is a fractional exponent and the first term has a variable under the radical which indicates a fractional exponent.

d) $y = 9^x + 10ix^4 - 15$

No, there is an imaginary number as a coefficient and a variable as an exponent which means that an exponent may not be a whole number.

9. a) $9x + 2 - x^2$

Standard Form: $-x^2 + 9x + 2$

Degree: 2

Leading Coefficient: -1

Name by Degree: Quadratic

Name by # of terms: Trinomial

b) $15 + 8x^3 - 3(x + 5) = 15 + 8x^3 - 3x - 15 = 8x^3 - 3x$

Standard Form: $8x^3 - 3x$

Degree: 3

Leading Coefficient: 8

Name by Degree: Cubic

Name by # of terms: Binomial

10. State the degree of each polynomial.

Polynomials in Expanded Form:

a) $7x^2 + 12 - 13x^4 + 8x$

Degree: 4

b) $9x + 1$

Degree: 1

c) 6

Degree: 0

Polynomials in Factored Form:

d) $(x + 3)(2x - 1) = 2x^2 \ldots$

Degree: 2

e) $(x - 7)^2(x - 5)$

$(x^2) \cdot (x) = x^3$

Degree: 3