Chapter 5

Polynomials

December 1, 2017

Term--Part of an expression or series separated by a + or - sign, or parts of a sequence separated by commas.

$3 + 5a^3 - 2xy$
$-2xy + 5a^3 + 3$

Expression	Terms
A) $5a^3 - 2xy + 3$	$5a^3$, $-2xy$, and 3
B) $\frac{p - 2q}{a^2 + b}$	p, $2q$, a^2, and b

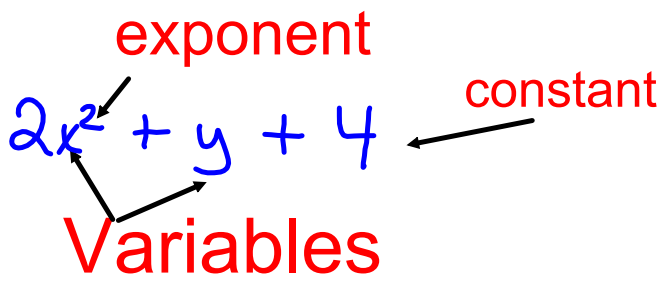
Polynomials

-6+4a

A polynomial is one term or the sum/difference of terms whose variables have whole number exponents.

Expression	Polynomial? [yes or no]	# of terms	List the terms
A) 2a + 3	yes	2	2a, 3
B) 4a - 6	yes	2	4a, -6
C) 4a	yes	1	4a

- constants [like 3, -20, or 1/2]
- Variables [like x , y etc]
- exponents [like the 2 in y^2] but only whole number exponents



Polynomials are combined using:

- addition [+], subtraction[-]

Term-a constant [number], variable ***or*** the product of a number and variable.

Examples of a Term $2, y, 2xy, 2x^2, -3x, -2$

constant $2, -2$

Variable y

product of a number and a variable

$2xy, 2x^2, -3x$

Polynomial	How many terms	List the terms	Identify constant if there is one
A. -3	1	-3	-3
B. $4a^2$	1	$4a^2$	none
C. $-3a + 4a^3$	2	$-3a, 4a^3$	none
D. $-3xy + 2$	2	$-3xy, 2$	2
E. $-4x + 3a + 2$	3	$2, -4x, 3a$	2
F. $2x^2+4x-3y+2$	4	$2x^2, 4x, -3y, 2$	2

The degree of a term is the sum of the exponents of the variables in a single term. For example, the degree of $4x^2y^1$ is 3.

The term with the greatest exponent determines the *DEGREE* of the polynomial.

$$3x^2 - 2x^1 + 5$$

The term -2x has a degree of 1

The term 5 is *constant term*. Its value does not change when the value of x changes. *A constant term has a degree of 0.*

What is the degree of the polynomial?

	Degree (Highest exponent on variable)	#Terms
a) $-3x^4$	4	1
b) $-2x^2 + 3x - 4$	2	3
c) $2x^4 + 4x^4 - 6$	4	3
d) $-3x^2 + 4x^3 - 2x + 4$	3	4
e) 4	none	1

What is not a polynomial?

If an expression has a square root of a variable $\sqrt{x}$, or has a variable in the denominator $\left(\frac{1}{x}, \frac{2}{x^2}\right)$ it IS **NOT A POLYNOMIAL!**