Chapter 5

Polynomials

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

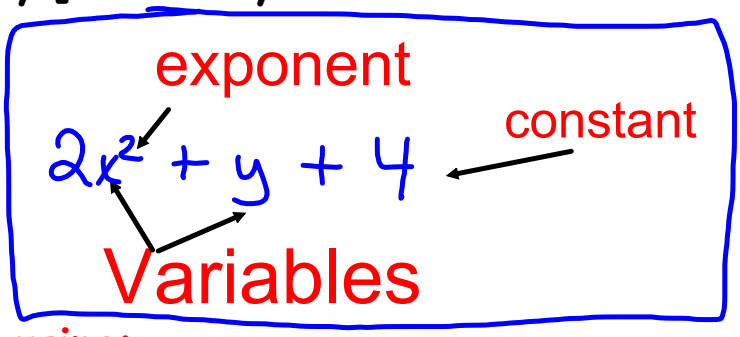
Expression	Terms
$5a^3 - 2xy + 3$	$5a^3$, $-2xy$, and 3
$\frac{p - 2q}{a^2 + b}$	p, $2q$, a^2, and b

Polynomials

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

Expression	Polynomial?	# of terms
2a + 3	yes	2
4a - 6	yes	2
4a	yes	1

- 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
a) -3	1	-3
b) $4a^2$	1	$4a^2$
c) $-3a+4a^3$	2	$-3a$, $4a^3$
d) $-3xy+2$	2	$-3xy$, 2
e) $2+3a-4x$ $-4x+3a+2$	3	2, $3a$, $-4x$
f) $2x^2+4x-3y+2$	4	$2x^2$, $4x$, $-3y$, 2

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!**

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

$3x^2 - 2x + 5$

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)	# Terms
a) $-3x^4$	4	1
b) $-2x^2 + 3x - 4$	2	3
c) $2x^2 + 4x^4 - 6$	4	3
D) $-3x^2 + 4x^3 - 2x + 4$	3	4
e) 4	none 0	1