

Algebra Monday 2-11-13 CLASS NOTES

Ch 6-3, POLYNOMIALS

MONOMIAL a number, a variable, or the product of a number and one or more variables
↓
MULTIPLY

EX 3, 3x, 4x²y, 1/2 x

NOT 3/x, x+y, x⁻¹

DEGREE OF A MONOMIAL the sum of the exponents of all of its variables.
↓
ADD

EX x, y,
NOT 3, 1/2, pi
↑↑
THESE ARE CONSTANTS,
degree = 0

EX 4y² degree = 2
4xy² degree = 3
2 degree = 0

Find the degree

		Degree
(EX)	$\frac{1}{2}x^2y^5z^8$	15
(EX)	$5^2x^5y^2$	7
(EX)	$2x$	1
(EX)	$7x^2$	2

POLYNOMIAL

ONE OR MORE MONOMIALS
SEPARATED BY A PLUS
OR MINUS

(EX) $4xyz$ MONOMIAL AND A 1-term
polynomial

(EX) $4x^2y + 2x$ 2-term polynomial
(can be called a binomial)
↓
2

(EX) $5x^2 + 3x - 1$ 3-term polynomial
(can be called a trinomial)

(EX) $7y^3 + 3x^2 - 2x + 1$ 4-term polynomial
(NO SPECIAL NAME
AFTER TRINOMIAL)

Degree
OF
A POLYNOMIAL

WARNING: it is not what
you expect - do NOT add
the degree of EACH
monomial. The greatest
monomial degree is the
degree of the ENTIRE polynomial.

(EX) $7y^3 + 3x^2 - 2x + 1$ } 4-term
polynomial is
degree 3

↑ ↑ ↑ ↑
 degree 3 degree 2 degree 1 degree 0
 monomial monomial monomial monomial

Degree

- (EX) $4x^2 - 7x^3 + 2x - 1$ 3
- (EX) $7xyz^3 + 3x^2yz^2 + \cancel{85}$ 5

(5) (5) (0)
- (EX) $\frac{1}{2}xyz + 3x^5y^7 + 12xy - 6$ 12

(3) (12) (2) (0)
- (EX) $7x^3y$ + $4x^2y^5$ + $3x^3y$

$10x^3y + 4x^2y^5$

(4) (7)

(7)

Names of Polynomial By Degree

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<u>Degree</u>	<u>Name</u>	<u>Example</u>
0	CONSTANT	4
1	LINEAR	" $2x + 3$
2	QUADRATIC	$2x^2 + 3x + 2$
3	Cubic	$3x^3 + 2x^2 + 4x - 1$
4	QUARTIC	$5x^4 + 3x - 2$
5	QUINTIC	$7ab^2c^2 + 5$

NO SPECIAL NAMES AFTER DEGREE 5

Standard form of a polynomial

When written in descending order by degree, i.e. highest degree monomial first.

(EX) $7x^2y^3 + 3a^4 + 2y^3 - 3x^2 + 4x -$

Leading coefficient

the coefficient of the 1st term when written in standard form

(EX) 7 from above is L.C.

EX4
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CLASSIFYING POLYNOMIALS

(A) $5x - 6$

degree 1, two-terms

Linear binomial

(B) $y^2 + y + 4$

degree 2, 3-terms

Quadratic trinomial

(C) $6x^7 + 9x^2 - x + 3$

7th degree, 4-terms

7th degree four-term polynomial