Chapter #5 Introduction to Polynomials

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5.1 Language of Mathematics

Algebra: a branch of math that uses symbols to represent unknown numbers/quantities

Algebraic Expressions
- no equal sign
- can have a different # of terms

Algebraic Equations
- phrase with an "=" sign

terms: - a #, a variable (letter), or a product of numbers and variables
- are separated by add (+) or subtraction (-)

Ex #1

$y+7$ — 2 terms

x^2-2x+3 — 3 terms

-1 — 1 term

$2t-9+t^3-t^2$ — 4 terms

→ $2x^2y^5z^7$ — 1 term

monomial : a 1-term expression ex. -1, $2x$, $5x^2$

binomial : a 2-term expression ex. $y+7$, $x+8$

trinomial : a 3-term expression ex. x^2+4x+8

polynomial : - an expression with 2 or more terms.
- connected by addition or subtraction

ex. $3x^2-4$, x^2+6x+3

Ex. #2 Classify each expression

(a.) $x-2y$
- binomial
- polynomial

(b.) $-17x^2y^2z^2$
- monomial

(c.) $4x$
- monomial

(d.) $2x^2-5x+16xy$
- polynomial
- trinomial

(e.) $x+y-2+5$
- polynomial

Degree of a term: add the exponents

↳ the degree of a monomial is the sum of the exponents of its variables

Ex. #3

Ex. #3

$2x^1$ degree: 1

$-3x^2y^3z^1$ degree: $2+3+1 = 6$

-7 degree: no variables so degree = 0

↳ the degree of a polynomial is the highest exponent of the variable in any 1 term

Ex. #4

$4x^2 - 3x^1 + 5$ — 3 terms

$2 \quad 1 \quad 0$

highest degree: 2

$3y^1 - 2y^3 + 2y^2$ — 3 terms

$1 \quad 3 \quad 2$

degree: 3

$4x^2 + 2x^3y^4$ — 2 terms

$2 \quad 3+4 = 7$

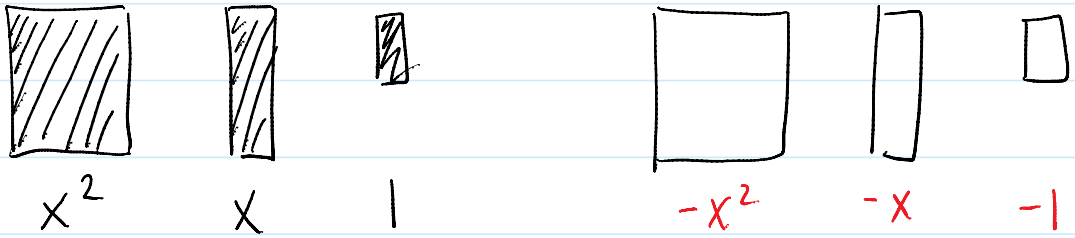
degree: 7

$25x^3y^1 + 36x^2y^2$ — 2 terms

$3+1 = 4 \quad 2+1 = 3$

degree: 4

Algebra Tiles


x^2
x
1
$-x^2$
$-x$
-1