

# Polynomials

any expression with more than one term.

term  $\Rightarrow$  a coefficient and variables

$$2x, \quad \frac{1}{2}xy^4, \quad \frac{3}{xyz^3}$$

# Polynomials

Binomial  $\rightarrow$  two terms

Trinomial  $\rightarrow$  three terms

Monomial  $\rightarrow$  one term

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## Degree of a polynomial

highest sum of the exponents  
for a term

$$4x^2 + 3x - 2 \rightarrow \text{Degree} = 2$$

$$3x^2y^3 + 4xy^3 - 4x^4 + 1 \rightarrow \text{Degree} = 5$$

$$f(x) = \frac{1}{2}x^2 - 3x^4 - 7$$

trinomial  
Degree = 4

$$f(x) = x^3 + 3\sqrt{x}$$

Binomial

not a polynomial function

$$f(x) = 6x^2 + 2x^{-1} + x$$

$$6x^2 + \frac{2}{x} + x$$

Can't divide by zero

not a polynomial function

$$f(x) = 3x^{1/2} + 5$$


$$3\sqrt{x} + 5$$

not a polynomial function

# Rules to being a polynomial

- 1) All exponents must be positive whole numbers

## Things Polynomials Hate

- 1) negative exponents
  - 2) variables in the basement
  - 3) fractional exponents
  - 4) those strange checkmark signs
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# Addition of Polynomials

$$(3x^3 + 2x^2 - x - 7) + (x^3 - 10x^2 + 8)$$

$$3x^3 + 2x^2 - x - 7 + x^3 - 10x^2 + 8$$

$$4x^3 - 8x^2 - x + 1$$

$$3x^3 + 2x^2 - x - 7$$

$$x^3 - 10x^2 + 8$$

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$$4x^3 - 8x^2 - x + 1$$

## Subtraction of Polynomial

$$(8x^3 - 3x^2 - 2x + 9) - (2x^3 + 6x^2 - x + 1)$$

$$8x^3 - 3x^2 - 2x + 9 - 2x^3 - 6x^2 + x - 1$$

$$6x^3 - 9x^2 - x + 8$$

$$8x^3 - 3x^2 - 2x + 9$$

$$-2x^3 - 6x^2 + x - 1$$

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$$6x^3 - 9x^2 - x + 8$$

Do Now!! 😊 pg 341

# 13-25  
odd

1) Add or Subtract

2) Tell me the number of terms and the degree.

13.  $(8x^2 + 1) + (3x^2 - 2)$

15.  $(x^2 - 6x + 5) - (x^2 + x - 2)$

17.  $(7x^3 - 1) - (15x^3 + 4x^2 - x + 3)$

19.  $(4x^2 - 11x + 10) + (5x - 31)$

21.  $(-3x^3 + x - 11) - (4x^3 + x^2 - x)$

23.  $(10x^3 - 4x^2 + 3x) - (x^3 - x^2 + 1)$

25.  $(10x - 3 + 7x^2) + (x^3 - 2x + 17)$