

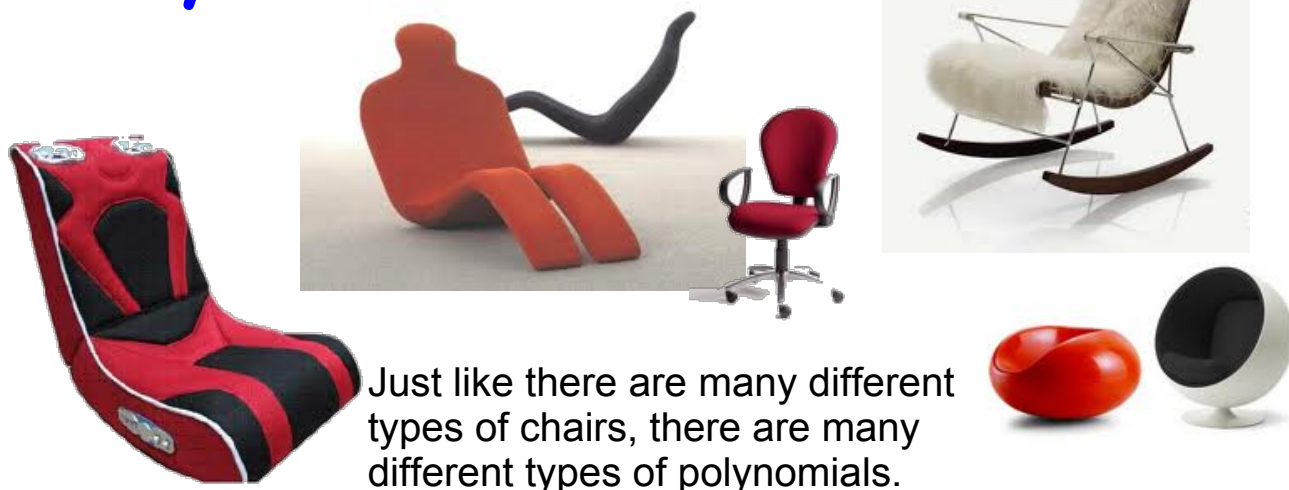
# Polynomials



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

$$5x^2 + 1$$

# Polynomials



Just like there are many different types of chairs, there are many different types of polynomials.

## Monomials...

Monomials are polynomials with ONE term.

Example

14

x

$2xy$

$11y^2$

"Terms are numbers, variables,  
or the  
product of numbers and variables

Jay Leno's  
monologue



## Binomials...

Binomials are polynomials with TWO terms.

$$7x+3$$

$$12y-x$$

Example

$$13x^2+x$$



Terms are separated by "+" and "-" signs!

## Trinomials...

Trinomials are polynomials with THREE terms.



$$-6x + 7y - 2$$

Example

$$7x^2 + 8x + 7$$

$$8 + 5m - 7m^2$$

$$\left. \begin{array}{l} (3x)y^2 + 7 \\ 3xy^2 + 7 \end{array} \right\} \text{binomial}$$

**Monomial**71     $6x$ **Binomial** $8b+2$      $10x-5w$ **Trinomial** $6x^2-5x+8$   
 $7y+9z-q$ 

Sort the following polynomials into the above categories:



The coefficient of the variable...  $15x$  ... is 15.

The coefficient is the number in front of the variable.

$5x$   
coefficient  $\uparrow$   $\uparrow$  variable





## *Degree of a Polynomial*

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

$$5x - 3x^2 + 7$$

This polynomial has a **degree of 2.**



Coefficients

$$6x^3 + 5x + 7$$

Variables

constant

- degree 3
- Trinomial

$$5x^3 + 7x^8 - 3x^1 + 3x^2 + 9x^0$$

zero

This polynomial has a degree of 8, because the greatest exponent is \_\_\_\_\_.

.....

The term "+9" has a degree of 0, because there is no variable with it. It is called a "constant", because this term will never change in value.

Polynomials are written in descending order.

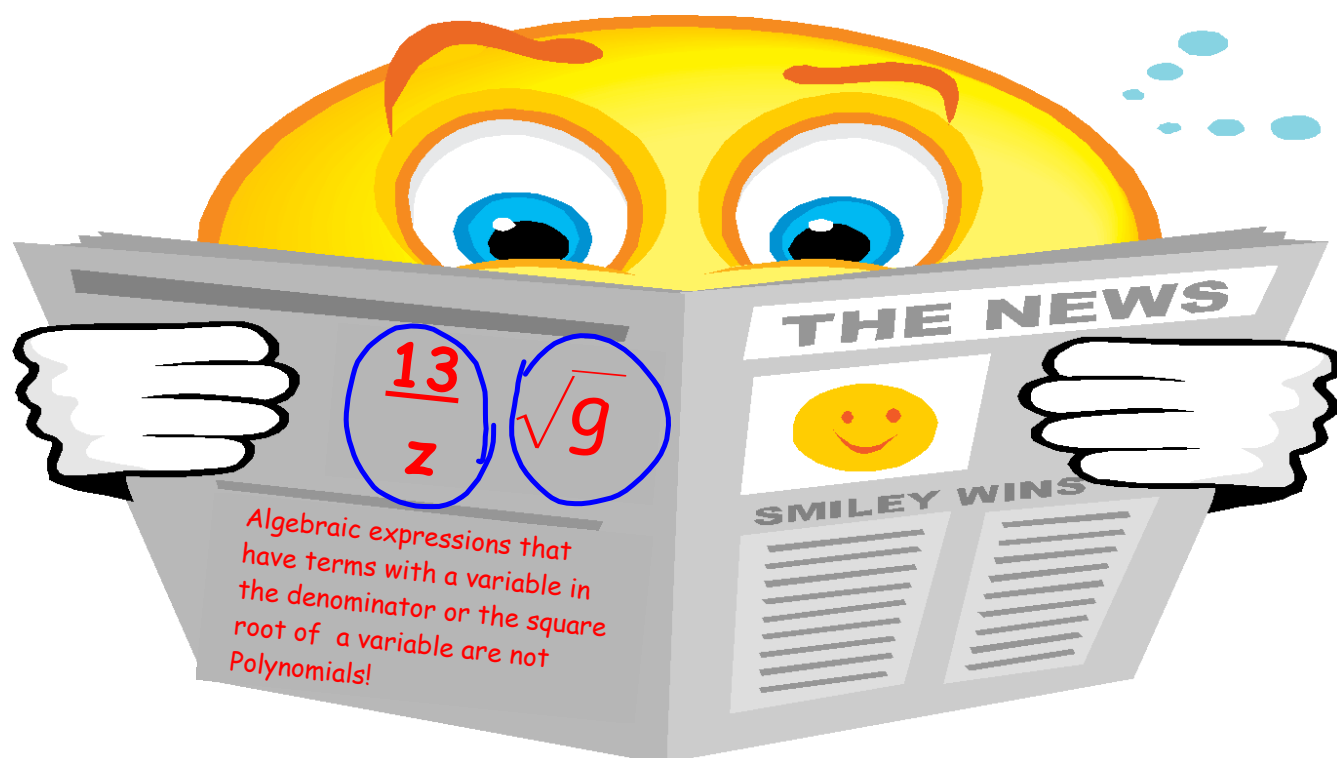
Each term is written  
from the highest degree  
to the lowest.



$$5x^3 - 3x^4 - x + 7 + 4x^2$$

will be written as...

$$-3x^4 + 5x^3 + 4x^2 - x + 7$$



### NOT Polynomials

- letters on the bottom
- square roots of the variables



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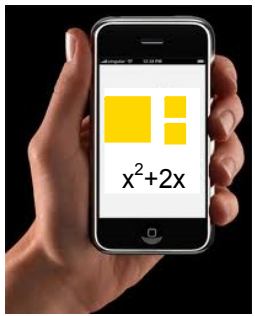
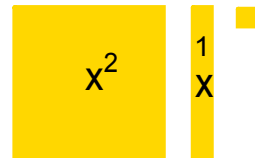
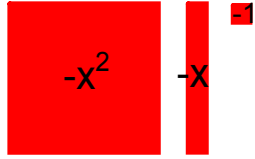
# 4 to # 8

# Modelling Polynomials

$$3x+4$$



$$2x^2-4x+2$$



# Modelling Polynomials

Write the algebraic expression that represents each model.

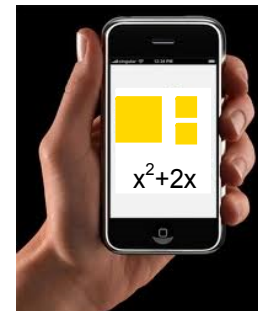
Don't forget to write it properly!

$x^2 + 6x - 2$

$2x^2 - 3x + 6$

$-x^2 - x - 1$

$x^2 + x + 1$





*Check out pages 214 - 216*