

Polynomials



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

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

Example

x

Example

$11y^2$

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

Jay Leno's monologue



Binomials...

Example

Binomials are polynomials with TWO terms.

$$7x+3$$

Example

$$12y-x$$

Example

$$13x^2+x$$



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

Trinomials...

Trinomials are polynomials with THREE terms.



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

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

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

Example

Monomial

$$6x$$

$$71$$

Binomial

$$8b+2$$

$$10x-5w$$

Trinomial

$$7y+9z-q$$

$$6x^2-5x+8$$

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.





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.

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

This polynomial has a degree of 8, because the highest exponent is 8.

.....

The term "+9" has a degree of zero, 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.



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

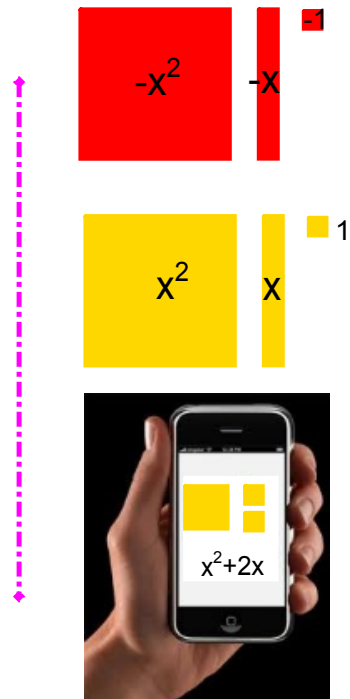
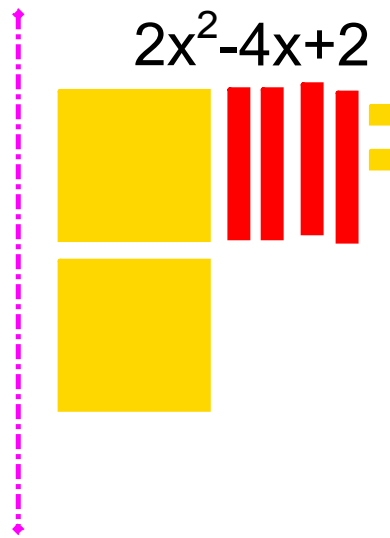
will be written as...

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

Algebraic expressions that have terms with a variable in the denominator or the square root of a variable are not Polynomials!

$$\sqrt{g}$$

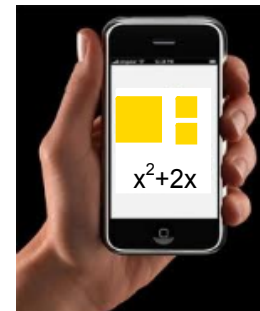
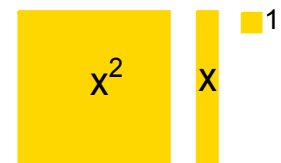
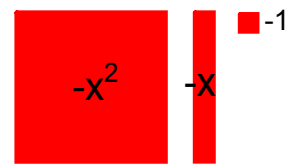
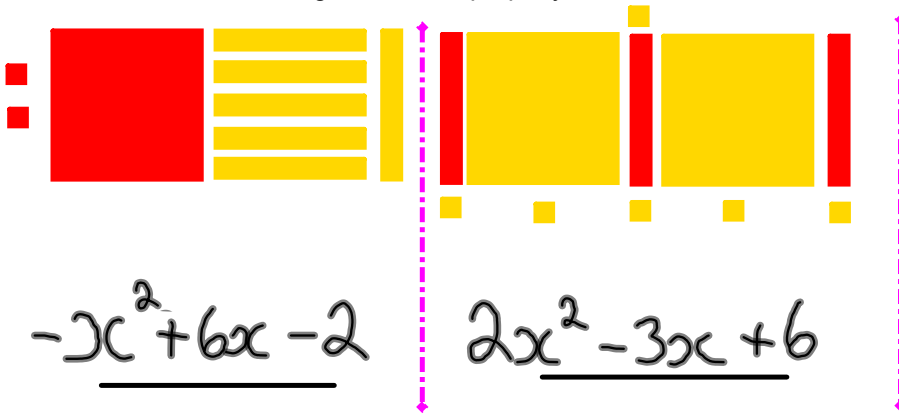
Modelling Polynomials



Modelling Polynomials

Write the algebraic expression that represents each model.

Don't forget to write it properly!





Check out pages 214 - 216