

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.

14

x

$11y^2$

Jay Leno's
monologue



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

Binomials...

Binomials are polynomials with TWO terms.

Example

Example



Example

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

Trinomials...

Trinomials are polynomials with THREE terms.



Example

Example

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.

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

x^0
 $9(1)$
 $= 9$

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

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.

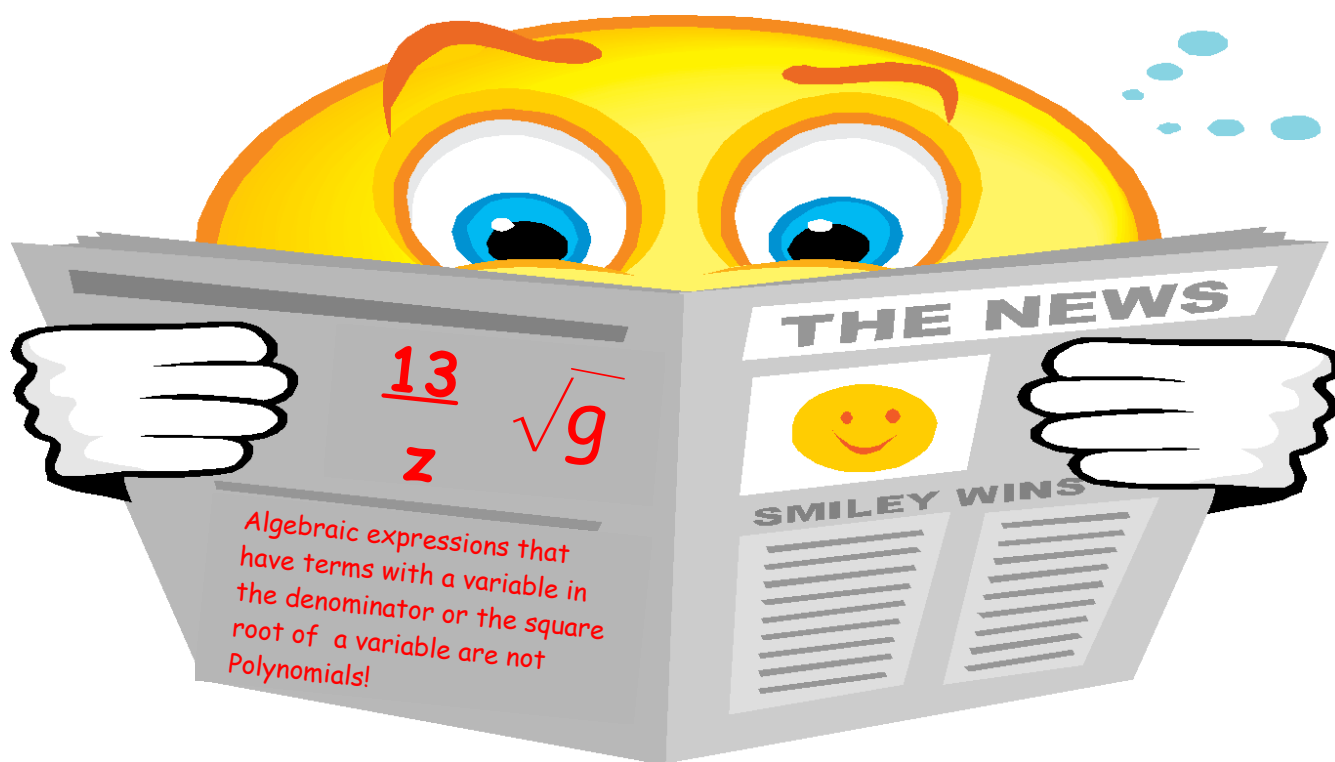


$$5x^3 - 3x^4 - x + 7 + 4x^2$$

will be written as...



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



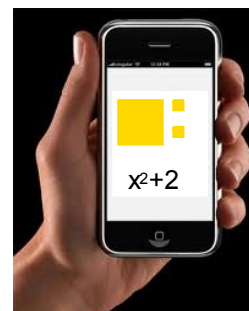
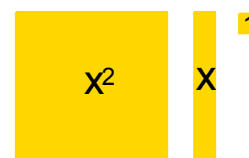
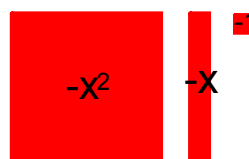
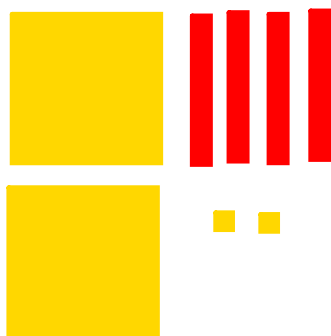
Algebraic expressions that have terms with a variable in the denominator or the square root of a variable are not Polynomials!

Modelling Polynomials

$$3x+4$$



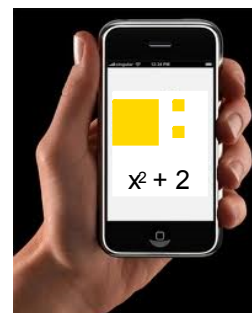
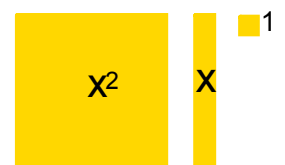
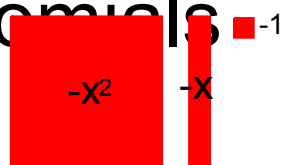
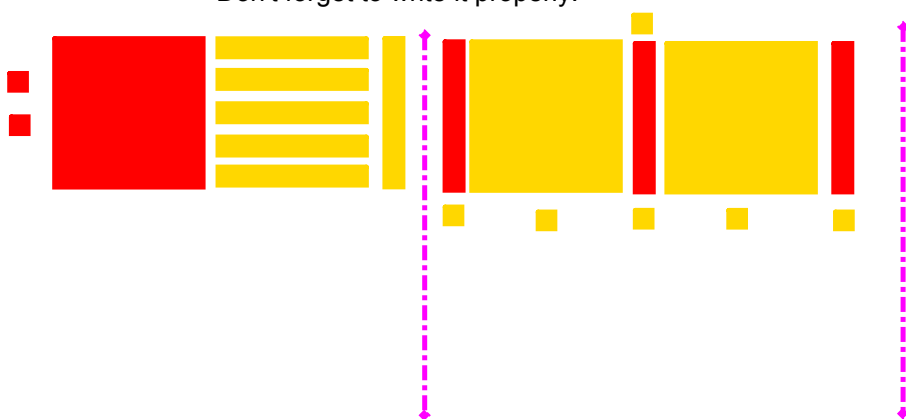
$$2x^2-4x+2$$



Modelling Polynomials

Write the algebraic expression that represents each model.

Don't forget to write it properly!



Answer #1

$-x^2 + 6x - 2$

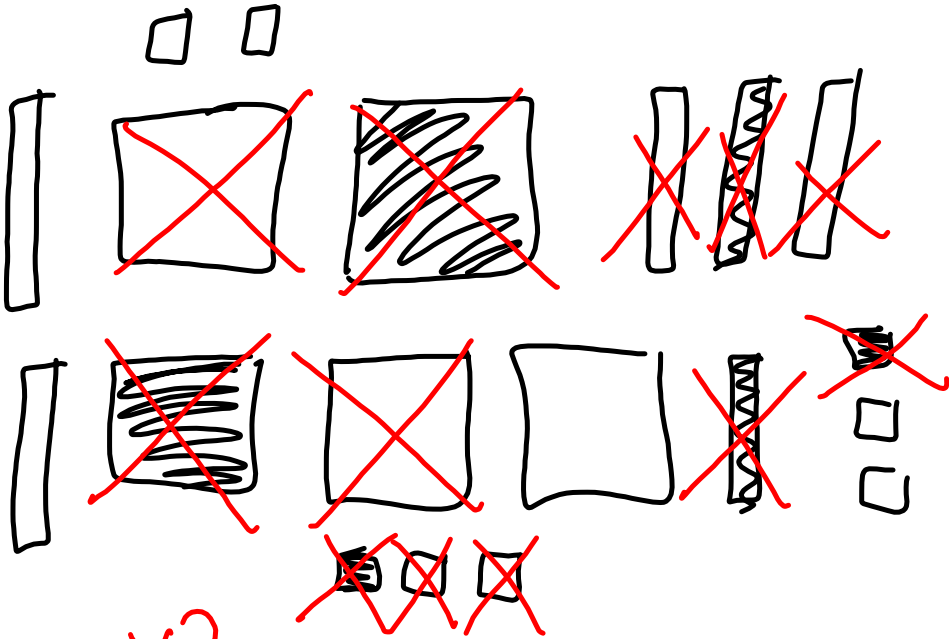
Answer #2

$2x^2 - 3x + 6$



Check out pages 214 - 216

4 - 9, 13, 14, 15



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

