

Distributive Property!

Unit 3: Polynomials

3.1 Intro to Polynomials

In algebra, a letter represents one or more numbers is called a variable.

Algebraic expressions do not contain an equal sign. ex. $2a-b+4$

A monomial is a number or variable or product of number and variables. Each exponent on a variable must be a whole number.
ex. $6, 6x, -1/6xy, 2p^4q^2$

A binomial has 2 terms. ex. $x+4, 2xy-3y^2$

A trinomial has 3 terms. ex. $2x^2 + 3x + 7$

A number that multiplies to a variable is called a coefficient.

A polynomial consists of one or more terms separated with + or - sign.

** A variable cannot be in the denominator. or exponent.

Distributive Property!

Ex.) Are the following polynomials?

a) $\frac{1}{4}xy-10$



b) $3pq^{1/2}$



c) $\sqrt{7}x^4 - x^3+1$



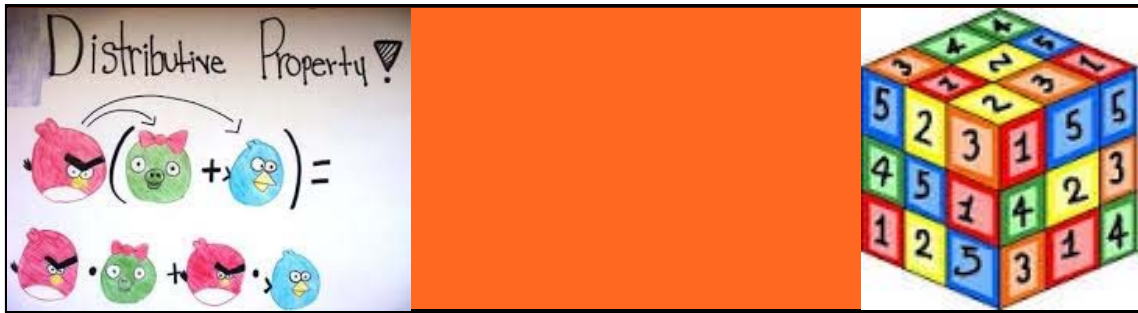
d) $\frac{7}{a}$



Complete the following table.

Polynomial Expression	# Variables	# Terms
$4x \oplus 3yz$	3	2
$2a - 4b + 7c$	3	3
$x^2 + 3x + 4$	1	3
$\sqrt{2}x$	1	1
$2x^3 + 3x^2y + 3y^2 - 8$	2	4

Separated by + or -



* Polynomials with 1 variable are usually arranged in descending order.

Ex.) Consider $2x - 4x^3 - 7 + 6x^2$

a) Descending Powers: $-4x^3 + 6x^2 + 2x - 7$

b) Ascending Powers: $-7 + 2x + 6x^2 - 4x^3$

c) Leading Coefficient: -4

d) Constant Term: -7

e) Coefficient of x^2 : 6

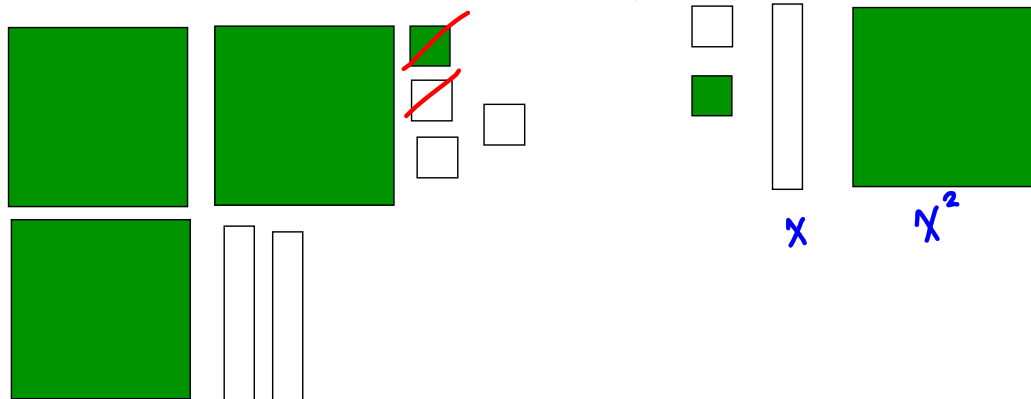
biggest exponent → smallest

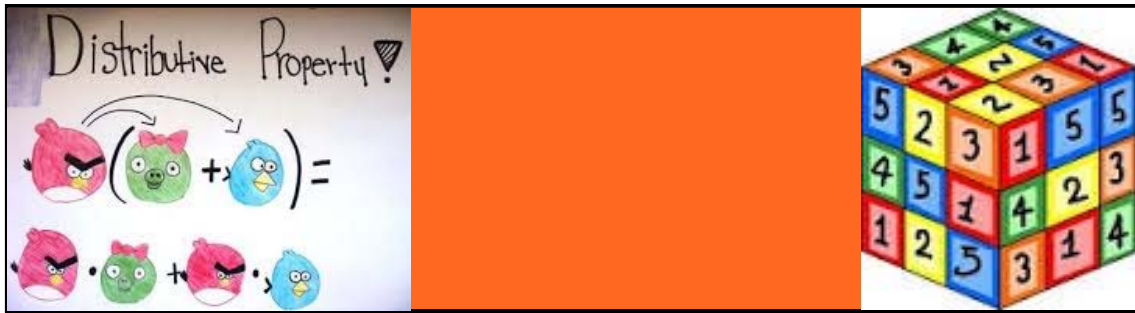
degree: $2x^2y^3$
5



Ex.) Use algebra tiles to determine the result of the addition:

$(2x^2 + 1) + (x^2 - 2x - 3) = 3x^2 - 2x - 2$





Ex.) Simplify the following by collecting like terms:

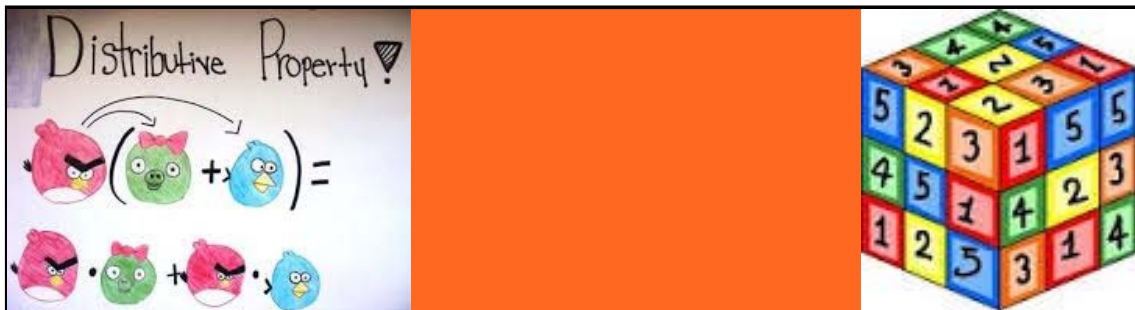
a) $(3a - 4b + 5c) + (3b - 5c - 6a)$

* exponents never change *

= $-3a + b$

b) $a^2b - ab^2 + 4a^3b - 7ab^2 + 5a^2b$

= $4a^3b + 6a^2b - 8ab^2$



Ex.) Subtract.

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

* when you see subtraction, switch it to plus and switch every sign in the bracket to the opposite *

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

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