Name:_____ Date:_____

Notes
Algebra Section 2.5
Pages 96-101

Goal: "You will apply the distributive property"
"You will combine like terms"

Vocabulary:

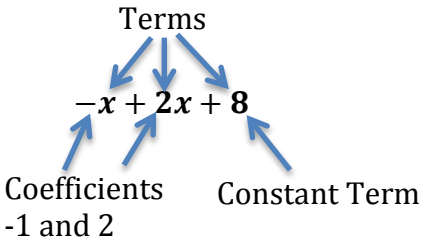
Term: The parts of an expression that are added together.

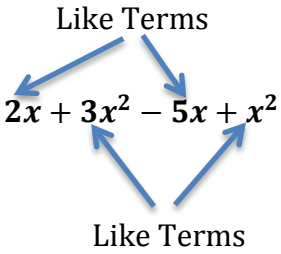
Like Terms: Terms that have the same variable parts.

Coefficient: The number part of a term with a variable part.

Constant term: The number part that has no variable part.

Terms:





Example: $3x + (-4) + (-6x) + 2$

Terms: $3x, -4, -6x, 2$
Like Terms: $3x$ *and* $-6x$
-4 *and* 2

Coefficients: $3, -6$
Constants: -4 *and* 2

Try These:

1) $3x + (-5) - 2x^2 + 6 - 9x$

Terms: $3x, -5, -2x^2, 6, -9x$

Like Terms: $3x$ *and* $-9x$; -5 *and* 6; $-2x^2$

Coefficients: $3, -2, -9$

Constants: $-5, 6$

2) $3xy + 4x - 7xy + 5y - 2x + 9$

Terms: $3xy, 4x, -7xy, 5y, -2x, 9$

Like Terms: $3xy$ *and* $-7xy$; $4x$ *and* $-2x$

Coefficients: $3, 4, -7, 5, -2$

Constants: 9

Combine Like Terms: Highlighters can be helpful.

$3x + 9 - 2x - 7$
$x + 2$

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

$4x + 3xy - 9x - 8xy$
$-5x - 5xy$

$-b + 3b^2 - 5b - 5b^2 + 4$
$-2b^2 - 6b + 4$

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

$-3w + 1 - 5w - 9 + w$
$-7w - 8$

Distribute: Multiply both terms inside the parentheses by the factor outside.

$5(x+4)$  $5(x+4)$

Examples:

$3(x+6)$
$3x+18$

$4(y-8)$
$4y-32$

$-2(5+3x)$
$-10-6x$

$-(4x-7)$
$-4x+7$

$-2m(m-9)$
$-2m^2+18m$

$a(3b-8)$
$3ab-8a$

Rewrite if factor is on the right of the parentheses.

$(2b-3)7$
$14b-21$

$(-3x+4)(-5)$
$15x-20$

$(3x+4)(-3)$
$-9x-12$

$(-3-4n)(-5n)$
$15n+20n^2$

$(4x+3)(-2y)$
$-8xy-6y$

$(-4w-8)(-2w)$
$8w^2+16w$

Distribute a negative. Take the opposite of everything in the parentheses.

$-(5x-6)$
$-5x+6$

$-(5d^2+4d-8)$
$-5d^2-4d+8$

$-(-3xy+2x-9y)$
$3xy-2x+9y$

Distribute and Combine Like Terms:

$2(x+3)+5x$
$7x+6$

$-8+3(5x-4)$
$15x-20$

$2(w-7)-8w$
$-6w-14$

$(3x-8)(-4)+6$
$-12x+38$

$2(3x-5)+3(-x+3)$
$3x-1$

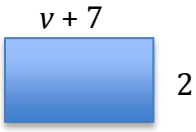
$-2(-4x+7)-(-3x+2)$
$11x-16$

$-(3a-5b)+2(2a-4)$
$a+5b-8$

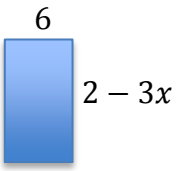
$-(3w+6)-(4-2w)$
$-w-10$

$-(3x+2)-3(2+x)+2$
$-6x-6$

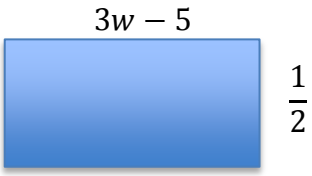
Geometry:
Find the area and perimeter of each rectangle.



Area: $2v+14$
Perimeter: $2v+18$



Area: $12-18x$
Perimeter: $-6x + 16$



Area: $1.5w-2.5$
Perimeter: $6w - 9$

Word Problems:

Your daily workout plan involves a total of 50 minutes of running and swimming. You burn 15 calories per minute when running and 9 calories per minute when swimming. Let r be the number of minutes that you run.

a) Write an expression for the number of minutes you swim if you run for (r) minutes (remember you work out for a total of 50 minutes). $50 - r$

b) Write an expression for the **total** number of calories burned (running and swimming) if you run for (r) minutes. $15r + 9(50 - r) = 6r + 450$

c) Find the **total** number of calories you burn (running and swimming) if you run for 20 minutes.
570 calories

You are planning a party and need to buy snacks. You plan on buying a total of 8 bags of snacks (Chex Mix and Cheetos). You buy (m) bags of Chex Mix. The Chex Mix costs $2 a bag and Cheetos costs $3 a bag.

a) Write an expression for the number of bags of Cheetos you buy.
$8 - m$

b) Write an expression for the **total** cost of buying the snacks.
$2m + 3(8 - m) = -m + 24$

c) How much will you spend in **total** if you buy 6 bags of Cheetos?
$22.00