Name:_____ Date:_____

Notes
Algebra Section 2.5
Pages 96-101

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

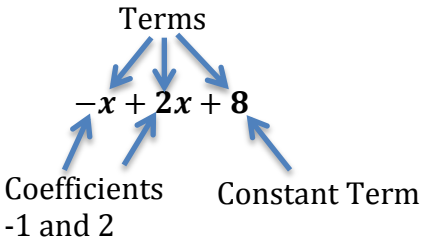
Vocabulary:
Term: The parts of an expression that are added or subtracted together.

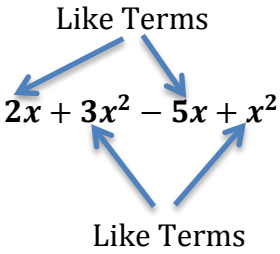
Like Terms: Term that have the same variable parts.

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: $3x \quad -4 \quad -6x \quad 2$
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

Coefficients: 3 2 9

Constants: 6 *and* -5

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.

$3x + 9 - 2x - 7$

$x + 2$

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

$-3x^2 - 2x$

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

$-5x - 5xy$

$-b + 3b^2 - 5b - 5b^2 + 4$ $\quad$ $2x^2 - 6 + x^3 - x^2 + 3$ $\quad$ $-3w + 1 - 5w - 9 + w$

$-6b - 2b^2 + 4$ $\quad$ $x^3 + x^2 - 3$ $\quad$ $-7w - 8$

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

$5(x + 4)$ $\quad$  $5(x + 4)$

Examples:

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

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

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

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

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

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

Rewrite if factor is on the right of the parentheses.

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

$14b - 21$

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

$15x - 20$

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

$-9x - 12$

$(-3 - 4n)(-5n)$
$-5n(-3 - 4n)$

$15n + 20n^2$

$(4x + 3)(-2y)$
$-2y(4x + 3)$

$-8xy - 6y$

$(-4w - 8)(-2w)$
$-2w(-4w - 8)$

$8w^2 + 16w$

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:

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

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

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

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

$-12x+38$

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

$3x-1$

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

$11x-16$

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

$a+5b-8$

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

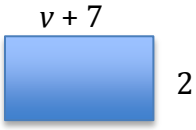
$-w-10$

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

$-6x-6$

Geometry:

Find the area and perimeter of each rectangle.



l=2

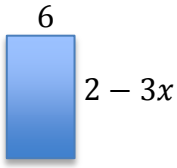
w=(v+7)

A (lw)= 2(v+7)=2v+14

P (l+l+w+w)=

2+2+(v+7)+(v+7)

18+2v



l=6

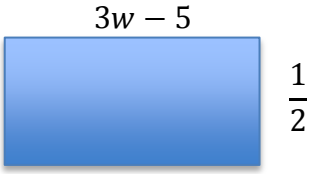
w= (2-3x)

Area (lw)= 6(2-3x)

P (l+l+w+w)=

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

16-6x



l=$\frac{1}{2}$

w=(3w-5)

Area (lw)= $\frac{1}{2}(3w-5)=\frac{3}{2}w-\frac{5}{2}$

P (l+l+w+w)=

$\frac{1}{2}+\frac{1}{2}+(3w-5)+(3w-5)$

$-9+6w$

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.

a) Suppose you run for 20 minutes.

   a. How many minutes do you swim? 30 minutes

      How did you find your answer? I subtracted the 20 minutes spent running from the 50 total minutes of exercise.

   b. How many calories do you burn swimming? 270 calories

      How did you find your answer? I multiplied the number of calories burned for each minute swimming by the number of minutes spent swimming. 9 by 30.

   c. How many calories do you burn running? 300 calories

      How did you find your answer? I multiplied the number of calories burned for each minute running by the number of minutes spent running. 15 by 20.

d. How many calories do you burn in total? 570 calories

How did you find your answer? I added the calories burned swimming and the calories burned running.

b) Suppose you do not know how many minutes you run. Use r for the number of minutes you run and write an expression for the total calories burned. Follow the process above but use r instead of 20. $15r + 9(50 - r)$

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.

$2m + 3(8 - m)$

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

$22.00