Goals: *Distribute positive and negative numbers
*Identify and combine like terms
$a(b+c)=$ $\qquad$ $a b+a c$ $\qquad$
$a(b-c)=$ $\qquad$ $a b-a c$ $\qquad$
$\qquad$ MULTIPLY $\qquad$ everything inside the parenthesis by the number or variable on the __OUTSDIE $\qquad$ .

Ex: $3(x+1)$
$3 x+1$

Ex: $x(4+x)$
$4 x+x^{2}$
$2 a+6$

## IF THERE IS SUBTRACTION REWRITE IT AS:

Ex: $2(x-5)$
$2 x+-10$

Ex: $3(1-y)$
$3+-3 y$
Ex: $-3(7-x)$
$-21+3 x$

Ex: $\left(x^{2}+4\right) y$

$$
x^{2} y+4 y
$$

Ex: $3(x+y+z)$
$3 x+3 y+3 z$

Ex: $-(2+x)$
$-2-x$

Term: a piece of an expression separated by _adding_ $\qquad$ or $\qquad$ _subtracting $\qquad$ signs.

Ex: $3 x+7 y+2 \quad$ How many terms? 3, they are $3 x, 7 y$ and 2

Coefficient: the number that is $\qquad$ multiplying $\qquad$ the variable.

Ex: $3 x$
What is the coefficient? 3

Constants: terms that are only _numbers $\qquad$ , no $\qquad$ _variables $\qquad$ . (the word "constant" means __stays the same $\qquad$ , the word "variable" means it can $\qquad$ change $\qquad$ ...so "constants" can't have
$\qquad$ variables $\qquad$ .)

Ex: $7 x-y+3 \quad$ Name all of the constants: 3

Like terms: terms that have the exact same $\qquad$ variable $\qquad$ piece.

Are the following sets "like terms?"
Ex: $3 x$ and $x$ ?
Yes
Ex: $x^{2}$ and $x$ ?
Ex: $x y$ and $x$ ?
No
No

Ex: $7 x$ and $8 x$ ?
Yes

## To combine like terms:

1. Rewrite the original problem
2. Add (or subtract) the $\qquad$ _coefficients $\qquad$ of the like terms together.
3. Keep going until there are no more like terms.
**REMEMBER POSITIVE AND NEGATIVE RULES

## Simplify the following expressions:

Ex: $7 x+3 x$
Ex: $8 y-2 y$
Ex: $2 z+z$
$10 x$
$6 y$
$3 z$

Ex: $4 a-3 b+2 b-a$
$3 a-b$

Ex: $3(2+x)+5 x$
$6+3 x+5 x$
$6+8 x$

Ex: $4+8(3+2 x)$
$4+24+16 x$
$28+16 x$

Ex: $-4(3-y)+6(y-2)$

$$
\begin{aligned}
& -12+4 y+6 y-12 \\
& -24+10 y
\end{aligned}
$$

