Pre-Algebra Review ***Date:*** _____

2.2/2.3 The Distributive Property

According to the Distributive Property, you distribute or "pass out" a multiplication to each addition or subtraction that is inside a set of parenthesis.

$5(2x + 3) = 10x + 15$ ← In this example, we distribute or "pass out" the five by multiplying it by both the 2x and the 3. You must multiply the number outside the parenthesis by **every number** (or term) that is inside.

Use the distributive property to multiply each expression:

1. $4(2x + 4) =$ _____
2. $7(3y + 5) =$ _____
3. $2(4y + 2x + 3) =$ _____
4. $2(3t – 3) =$ _____

The distributive property can get tricky when negative numbers and minus signs are involved. YOU MUST BE CAREFUL WHEN DEALING WITH THE SIGNS. The best way to avoid mistakes is to use the Rule for Subtraction – Add The Opposite. Also remember that when we multiply two numbers with the SAME signs, the answer is always positive. When we multiply numbers with DIFFERENT signs, the answer is negative.

$–3(4x – 2) = –3(4x + –2) = –12x + 6$ ← In this example, we rewrote $4x – 2$ as $4x + –2$ (by adding the opposite). Then we distributed or "passed out" the –3 by multiplying it to both 4x and –2.

Use the distributive property to multiply each expression:

5. $-2(3x - 5) =$ _____

6. $(5b - 2)(-4) =$ _____

Simplifying Expressions by Combining Like Terms

Vocabulary:

A **term** is a number or variable in an expression.

A **constant** is a term that has no variable.

A **coefficient** is a number that multiplies a variable.

$3x + 2x + 4y + 8$
Terms -- 3x, 2x, 4y, and 8 Constants -- 8 Coefficients -- 3, 2, and 4 Like Terms -- 3x and 2x

Like Terms are terms with identical variables.

→ When we have like terms, we can add their coefficients and keep the variable. This is called **Combining Like Terms**.

Examples of Like Terms

Terms	**Like Terms?**	**Combine Like Terms (if possible)**
$5x + 3x$	_____	_____
$5x + 2y$	_____	_____
$2y + 8y$	_____	_____
$5p + 3$	_____	_____

Simplify by Combining Like Terms

1. $5m + 7m - 4m$ _____

2. $3x + 4x + 7y + 3y + 2$ _____

3. $6b - 4a - 8b + 10a$ _____

Simplify by using the Distributive Property to remove parenthesis THEN Combining Like Terms.

4. $3(4n + 2) + 8n - 6$

5. $-3(2x + 6) + 4(x - 2)$

6. $5(2x - 3) + 4(3y + 2) + 2x + 2y$

7. $4n + 6p + 3 - 8n + 4p - 10$