# "I Can Combine Like Terms to Simplify and Generate Equivalent Expressions." Equivalent Expressions

One of the most important properties to remember when simplifying expressions is the **Commutative Property** where we can move terms around so that the **Like Terms** are right next to each other. With this property in mind and to save time we can put different shapes around like terms **and their signs** to combine them.

$$5x+7-3x+4$$
  $a+4b-3b+2a+9b$   $8+7p-4q+3p$ 

**But...** When we have to ALWAYS perform the **Distributive Property** when needed before combining like terms.

$$4x+3(2x-9)$$

$$2a+4(3a-b)+7b$$

### Let's try a Couple More

1.  5(6x)	2x + 5y + 7x	3. $2a+3b+a+7$
4. $2(x+6)-8$	5. $3b+4(2a+4b)$	6. $4(7x+5y)-8x-7y$

#### This question appeared on the NYS test last year...

Jimmy and 3 of his classmates wrote expressions that they all felt were equivalent. Jimmy wrote the expression 4x+8y and then looked at his classmates expressions that did not look at all like his. Decide which, if any, of the below expressions are equivalent to Jimmy's.

Mary Beth: 
$$5y+2(2x+3y)$$

Jesse: 
$$2(2y)+2(2y)+2(2x)$$

Samantha: 
$$4(x+3y)-4y$$

First let's answer by simplifying each expression

Mary Beth	Jesse	Samantha

To check our thoughts, let's plug in some values for x and y see what happens.

## Let x = 4 and y = 3

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Jimmy:		Mary Beth:	
	4x+8y	5y + 2(2x + 3y)	
T		Compaths	
Jesse:		Samantha	
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# Equivalent Expressions

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$$5x+7-3x+4$$

$$2 \times + 11$$

$$(a)+4b(-3b)+2a(+9b)$$
  
 $3a+10b$ 

$$8+7p-4q+3p-1+10q$$

$$10p + 6q + 7$$

**But...** When we have to ALWAYS perform the **Distributive Property** when needed before combining like terms.

$$4x+3(2x-9)$$
 $4x+6x-27$ 
 $10x-27$ 

$$2a+4(3a-b)+7b$$

$$2a+12a-4b+7b$$

$$14a+3b$$

Let's try a Couple More

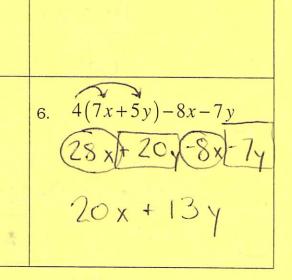
1. 5(6x)

$$30 \times 4. 2(x+6)-8$$

$$2x+12[-8]$$

$$2x+4$$

9x+5y



(2a)+3b(+a+7)

3a+36+7

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