

Name: \_\_\_\_\_

## Key Study Guide

UNIT #1 Study Guide  
COMMON CORE ALGEBRA I

## Study Guide

PART I QUESTIONS: Answer all questions in this part. Make sure you show all of your work.

1. Which of the following is equivalent to

$4(6x + 7)$

$4(6x)$  is  $24x$

$4(7)$  is  $28$

$24x + 28$

Distribute which  
means multiply  
to both parts2. Which of the following is the value of the expression  $\frac{-3+x}{4}$  when  $x = -9$ Substitute  
then  
distribute

$\frac{-3+(-9)}{4}$

is

$\frac{-3-9}{4}$

is

$\frac{-12}{4}$

is  $-3$ 3. If the expression  $2+5x$  is equal to  $42$  for some value of  $x$ . Does  $x = 8$ ?

$2+5(8)$

$2+40$

$42$

yes equals

4. Is binomial  $-7+2x$  equivalent  $2x-7$ ? yes, by the Commutative Property

The order can change.

5. Fill in the blank

$3x + x + \underline{\quad} = 9x$

$4x + \underline{\quad} = 9x$

$x + x + x + x$

$3x + x$

$4x$

This blank should be  $5x$ .

$4x + 5x = 9x$  yes

6. The sum of  $6-x$  and  $4x-1$  is

$$\begin{array}{r} 6-x+4x-1 \\ -x+4x+6-1 \\ \hline 3x+5 \end{array}$$

Commutative property

Combine Like Terms (CLT)

7. Which of the following equations illustrates the distributive property and commutative property?

$$-2(x) = -2x$$

Distributive  
( ) are gone

$$-2+x = x-2$$

Commutative  
the order changed

8. Which of the following is  $3(-6x)$

$$-18x \text{ distribute}$$

9. The expression  $2(x)+5x+3$  is equivalent to each of the following.

$$\begin{array}{r} 2x+5x+3 \\ \hline 7x+3 \end{array}$$

distribute  
combine like terms

10. When written in simplest form the expression  $4(-6x+7)+3(8-x)$

$$-24x+28+24-3x$$

Distribute

$$-24x-3x+28+24$$

Commutative

$$-27x+52$$

Combine Like terms

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PART II QUESTIONS: Answer all questions in this part. Make sure you show all of your work.

11. Find the Sum of  $-2x$  with  $8x$  in simplest form.

$$8x - 2x$$

$$6x$$

12. If  $n$  represents a number, simplify the expression.  $-4(n-5)$   
 $-4n + 20$  negative times negative

13. Which of the following is equivalent to the expression  $\frac{8+x}{2}$  when  $x = -4$

$$\frac{8+(-4)}{2} \text{ is } \frac{8-4}{2} \text{ is } \frac{4}{2} \text{ is } 2$$

PART III QUESTIONS: Answer all questions in this part. Make sure you show all of your work.

14. Which of the following properties justifies the equivalence: Define the answer.

$$3+n = n+3$$

$$\text{and } 6(x) = 6 \cdot x$$

Commutative  
order changed

Distributive  
( ) are gone

If  $4x-7=-5$  for some value of  $x$ , is it true when  $x = -3$ ? Show substitution.

$$4(-3)-7 = -5$$

$$-12-7 = -5$$

$$-19 = -5$$

No,  $x$  does not equal  $-3$

b/c the last equation is

Not true.

16. Of the following, which are equivalent?

$$7 - n = n - 7 \quad \text{OR}$$

$$3(x + 4) = 3x + 12$$

By the distributive property

17. Combine like terms for the expression

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

Combine  
Like  
terms

$$-8x + 7$$

PART IV QUESTION: Answer the question in this part. Show your work.

18. What is following step to simplify the expression?

Expression //  $-3(4x - 1) + 7(5x - 2)$

Step #1  $-12x + 3 + 35x - 14$

$$-12x + 35x + 3 - 14$$

$$\underbrace{\hspace{2em}} \quad \underbrace{\hspace{2em}}$$

$$23x - 11$$

The distributive property

b/c the ( ) are gone.

Commutative property

changes the order

19. Simplify the problem above.

↑  
Simplified