Name : KEY Period: _____

Number Properties: Identify and Apply

Part 1: Identify the property described.

1) The multiplicative inverse of a number, a is $\frac{1}{a}$ so that $a \times \frac{1}{a} = 1$. Mult. Inverse

2) The sum of any number and zero is the original number. For example $a + 0 = a$. Identity

3) When two numbers are added, the sum is the same regardless of the order of the addends. For example $a + b = b + a$ Commutative

4) Adding 0 to any number leaves it unchanged. For example $a + 0 = a$. Identity

5) When three or more numbers are multiplied, the product is the same regardless of the order of the multiplicands. For example $(a \times b) \times c = a \times (b \times c)$ Associative

6) When three or more numbers are added, the sum is the same regardless of the grouping of the addends. For example $(a + b) + c = a + (b + c)$ Associative

7) The additive inverse of a number, a is -a so that $a + -a = 0$. Add. Inverse

8) The sum of two numbers times a third number is equal to the sum of each addend times the third number. For example $a \times (b + c) = a \times b + a \times c$ Distributive

9) The product of any number and one is that number. For example $a \times 1 = a$. Identity

10) When two numbers are multiplied together, the product is the same regardless of the order of the multiplicands. For example $a \times b = b \times a$ Commutative

(MORE ON BACK)

Part 2: Provide the property used during each step of the problems below.

11) $3(20 + 7) - 2(\frac{1}{2}) + 8(1)$

Distributive

$60 + 21 - 2(\frac{1}{2}) + 8(1)$

Mult. Inverse

$60 + 21 - 1 + 8(1)$

Identity

$60 + 21 - 1 + 8$

88 (What is simplified expression?)

12) $(-4 + 11) + (-16 + 9) + 5(0)$

Associative

$(-4 + -16) + (11 + 9) + 5(0)$

Zero Product

$-20 + 20 + 0$

Add. Inverse

$0 + 0$

Identity

0

Part 3: Solve for the given variable.

13) What is a? $3(a + 7) = -9 + 21$

$a = -3$

14) What is b? $4b + 8b - 12b = 0$

$b = 0$

15) What is c? $18 + c + 7 = 7 + 18 + 9$

$c = 9$

16) What is d? $(d + 5) + 10 = 20 + (5 + 10)$

$d = 20$