

Name /Period: _____ / _____ Date: _____

Properties of Add & Mult W/S #1 Equivalent Expressions

Commutative Property (+,•): Reorder example: $8 + b = b + 8$

Associative Property (+,•): Regroup example: $5 \cdot (6 \cdot 7) = (5 \cdot 6) \cdot 7$

Additive Identity (add zero) Property: No Change ex: $2 + 0 = 2$

Multiplicative Identity (times one) Property: No Change ex: $3y \cdot 1 = 3y$

Zero Product Property: Always equal to zero example: $3t \cdot 0 = 0$

Match the example to the property (draw a line). **Fill in the blank with the full name or change.**

Example: $3 + 4 + 5 = 5 + 3 + 4$ $\longrightarrow$ Commutative Property of Addition = REORDER

1. $(4 + 9) + 3 = 4 + (9 + 3)$ Multiplicative Identity Property = _____

2. $300 + 0 = 300$ _____ = Regroup

3. $3(xy) = (3x)y$ Commutative Property of Multiplication = _____

4. $(4x + 3y) \cdot 1 = (4x + 3y)$ Associative Property of Addition = _____

5. $a \cdot 4 \cdot b = 4 \cdot b \cdot a$ _____ = No Change

IDENTIFY THE full name of the property and the type of change:

6. $(3x)(2) = (2)(3x)$ _____ (full name of property)

_____ (type of change)

7. $(3 \cdot 4) \cdot 7 = 3 \cdot (4 \cdot 7)$ _____

8. $2 + 47 + 8 + 3 = 2 + 8 + 47 + 3$ _____

9. $-4y + 8z + 0 = -4y + 8z$ _____

Now write your own equation that illustrates the properties listed:

10. _____ Commutative Property of Add. (reorder)
11. _____ Identity Property of Add. (no change)
12. _____ Associative Property of Mult. (regroup)
13. _____ Identity Property of Mult. (no change)
14. _____ Commutative Property of Mult. (reorder)

Use properties to change the expression then solve (show work). Name the change/property.

Example: $18 + 26 + 2 =$

$\begin{array}{r} 18 + 2 + 26 \\ \quad \swarrow \quad \searrow \\ \quad 20 + 26 \\ \quad \quad \downarrow \\ \quad \quad \boxed{46} \end{array}$

Commutative + , REORDER

15. $(33 + -26) + -4 =$

16. $(-24 + 0) + 5 =$

17. $-5 \cdot 39 \cdot 2 =$

18. $58 - 49 + 2 =$

19. $12 \cdot (5 \cdot 7) =$

*20. $36 + 57 + (-36) =$

* IDENTIFY
BOTH
PROPERTIES!
