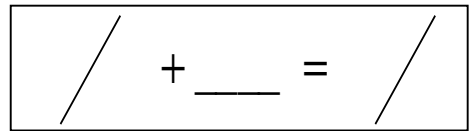Name _____ Period_____

3-1 Variables and Properties

Evaluate each expression if a = -4, b= 2, x = 3, and y = -6.

1. $y - a$

2. $y - b$

3. $x^2 + y$

4. $a^2 + b$

5. ab

6. $|ax|$

7. $|bx|$

8. xy^2

9. $|ab + y|$

10. $|ax - b|$

11. $bx - y$

12. $xy + ab$

13. $\dfrac{y}{b}$

14. $\dfrac{y}{x}$

15. $\dfrac{a}{b} + y$

16. $\dfrac{a + y}{b}$

17. $5a$

18. $4b^3$

19. $\dfrac{(5 + x)^2}{b}$

20. $6b - 3a$

Evaluate each expression if a = 5, b = 3, x = -2, and y = 4.

21. $7a$

22. $8b$

23. $2x + y$

24. $x^3 + y^2$

25. $a + 6b$

26. $5x - y$

27. $8b - 4a$

28. $ax^2 + b$

Write the definition of each property:
29) Commutative property   **30) Associative Property**

31) Identity Property   **32) Multiplicative of Zero**
Add :

Multiplying:

Name the property shown by each statement
      33) x · 1 =x

                              39) ab + 0 = ab

      34) 14xy = 14yx

                              40) (x · y) · z = x · (y · z)

      35) (3 + 5) + c = 3 + (5 + c)

                              41) (7 · 3) · 5 = 7 · (3 ·5)

      36) (3 · 9) · 1 = 3 · 9

                              42) (2 + x) · 0 = 0

      37) (a + b) + c = c + (a + b)

                              43) (8 + 5) + 3 = 3 + (8 + 5)

      38) (x + y) · 5 = (y + x) · 5

44) $(a + b) \cdot 1 = a + b$ For example $(a + b) + c = a + (b + c)$

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

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

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

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

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

51) Multiplying any number by 0 yields 0. For example $a \times 0 = 0$.

48) When three or more numbers are added, the sum is the same regardless of the grouping of the addends.

<u>Common Core Review</u>

52) A package of pencils cost $1.25. A new eraser cost. $0.45. Write an expression to find the total cost of 3 packages of pencils and 2 erasers.

53) Using your expression that you wrote in #52, what is the total cost?

Evaluate:

54) 1   = _____

55) $3^3 =$ _____

56) $10^4 =$ _____

57) Jayden goes to the batting cage. He purchases three tokens and rents a helmet. If he spends a total of $6.50, how much is each token?

Batting Cage Prices	
Tokens	■
Helmet Rental	$2