

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

## Algebraic Properties

- 1) Which property allows you to write  $4 + (3 + 9) = (4 + 3) + 9$ ?
- 2) Explain how the commutative and associative properties of multiplication can help you evaluate the product  $5 \cdot 17 \cdot 2$  mentally.

Evaluate the expression. Justify each of your steps.

3)  $(26 + 18) + 34$

4)  $^{-}4(9)(^{-}5)$

5)  $(3.45)(6.26)(0)$

Evaluate the expression when  $x = 5$  and  $y = ^{-}2$ .

6)  $33xy$

7)  $x \cdot 11 \cdot y^2$

8)  $x^2 + y^3 + 15$

Simplify the expression.

9)  $x + 6 + 11$

10)  $9(^{-}5a)$

11)  $^{-}2 + y + 8$

Identify the property that the statement illustrates.

12)  $n + q = q + n$

13)  $^{-}4ab = ^{-}4ba$

14)  $(3 \cdot 8) \cdot 2 = 3 \cdot (8 \cdot 2)$

Evaluate the expression. Justify each of your steps.

15)  $32 + 16 + 8$

16)  $15(^{-}9)(2)$

17)  $7 \cdot 1 + 0$

18)  $45 + 29 + 55$

Evaluate the expression when  $a = 9$ , and  $b = ^{-}4$ .

19)  $5ab$

20)  $b(25a^2)$

21)  $11 + 4b + a$

22)  $3a + b^2 + 13$