Name _____ Class _____ Date _____

Reteaching 7-4

More Multiplication Properties of Exponents

OBJECTIVE: Using two more multiplication properties of exponents

MATERIALS: None

- To raise a power to a power, multiply the exponents.
- Every number and variable inside parentheses is being raised to the power to the right of the parentheses.

Example

Simplify $(4x^3)^2$.

$(4x^3)^2$		
$(4^1x^3)^2$	←	**Rewrite each number and variable with an exponent.**
$(4^1x^3)^2$	←	**Draw arrows from the exponent outside the parentheses to each exponent inside the parentheses.**
$4^{2\cdot 1}x^{2\cdot 3}$	←	**Rewrite, showing the exponents to be multiplied.**
4^2x^6	←	**Multiply the exponents.**
$16x^6$	←	**Simplify.**

Exercises

Draw arrows from the exponent outside the parentheses to each exponent inside the parentheses. Then simplify each expression.

1. $(5^2)^4$ **2.** $(a^5)^4$ **3.** $(2^3)^2$ **4.** $(4x)^3$

5. $(7a^4)^2$ **6.** $(3g^2)^3$ **7.** $(g^2h^3)^5$ **8.** $(s^6)^2$

Simplify each expression.

9. $(x^2y^4)^3$ **10.** $(3r^5)^0$ **11.** $g^9 \cdot g^{-7}$

12. $(c^4)^7$ **13.** $(3.2)^5 \cdot (3.2)^{-5}$ **14.** $(8ab^6)^3$

15. $(x^2y^3)^2$ **16.** $(x^7)^2$ **17.** $(3x^2y)^2$

18. $(-2x^2)^3$ **19.** $(x^3y^4)^3$ **20.** $(3x^2y)^3$

21. $(-4x^2y^3)^3$ **22.** $(xyz)^0$ **23.** $x^5 \cdot x^{-7}$

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