

Multiplication Properties Review

Name _____ Hr _____

Make a very simple example of each of the 5 properties using the variable x and maybe a number.

a) Zero Exponent (7.1)

b) Negative Exponent (7.1)

c) Product of Powers (7.3)

ex. $(3x)^0 = 1$

d) Power of a power (7.4)

e) Power of a product (7.4)

Simplify each expression. Use only positive exponents.

1. $(v^4)^2$

2. $(3q)^5$

3. $(n^4)^{-6}$

4. $\frac{1}{a^{-4}}$

5. $5m^5m^{-8}$

6. $(4.5)^4(4.5)^{-2}$

7. $\frac{r^5}{g^{-3}}$

8. $(x^3)^4y^3$

9. $(m^2)^8(n^0)^4$

10. $(3n^4)^2$

11. $(mnp)^0$

12. $(bc^3)^5$

13. $(m^7t^{-5})^2$

14. $(a^4)^6(b^5)^{-2}$

15. $(w^2j^4)^3 \cdot j^7$

Evaluate each expression for $m = 2$, $t = -3$, and $w = 4$.

16. t^m

17. m^t

18. $(w \cdot t)^m$

Complete each equation.

19. $(t^{-2})^{\square} = t^{-8}$

20. $(a^7)^{\square} = a^{-21}$

21. $(m^2 n^{-4})^{\square} = \frac{m^4}{n^8}$

Are the following simplified? If not, explain why and simplify.

22. $(g^3)^{-2} = g^{-6}$

23. $(-2x^2 y)^3 \cdot x = -8x^6 y^3 \cdot x$

24. $2h^3 \cdot 4(g^2)^3 = 2h^3 \cdot 4g^6$

Simplified Expressions:

- have reduced fractions
- have positive exponents only
- each variable appears only once
- do not have parenthesis ()