



## Pre-Algebra: Exponents #5 (page 1)

**YOU MUST EXPAND** to simplify. Look for patterns.

1.  $(2^3)^3 = 2^n$  1. \_\_\_\_\_
2.  $(2^2)^4 = 2^n$  2. \_\_\_\_\_
3.  $(4^2)^3 = 4^n$  3. \_\_\_\_\_
4.  $(8^3)^2 = 8^n$  4. \_\_\_\_\_
5.  $(5^4)^2 = 5^n$  5. \_\_\_\_\_
6. What is the rule for raising a power to a power? \_\_\_\_\_



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7.  $x^{-6} \cdot x^4 = x^n$  7. \_\_\_\_\_
8.  $2^7 \cdot 2^0 = 2^n$  8. \_\_\_\_\_
9.  $3^3 \cdot 3^5 = 3^n$  9. \_\_\_\_\_
10.  $\frac{7^8}{7^2} = 7^n$  10. \_\_\_\_\_
11.  $\frac{10^4}{10^8} = 10^n$  11. \_\_\_\_\_
12.  $\frac{x^8}{x^5} = x^n$  12. \_\_\_\_\_
13.  $4^{-3} =$  \_\_\_\_\_ Do not leave your answer as a power.
14.  $x^{-7} =$  \_\_\_\_\_ Write answer using a positive exponent.
15. Expand the following expressions to prove that the equations are true.  
Expand  $(x^3)^4$  to prove  $(x^3)^4 = x^{3 \cdot 4} = x^{12}$

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