

## Exponent Operations Worksheet

Name \_\_\_\_\_ Per \_\_\_\_\_

## Power to a Power

Part 1: Expand each expression and write the product.

1.)  $(2^3)^4 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2.)  $(p^2)^5 =$

3.)  $(x^m)^2 =$

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

5.) What is the fast way to simplify when you raise an exponent to another power (or what can you do instead of expanding)?

Part 2: Find the product. Expand if it helps you.

6.)  $(2x)^2$

7.)  $(10^2)^3$

8.)  $(-3^2 x^6)^5$

9.)  $(7j^2)^3$

10.)  $(8n^2 p)^3$

11.)  $2(3a^2)^3$

12.)  $(xy)^2 (x^2 y^2)^2$

13.)  $\left(\frac{8x^2}{2x^2}\right)^2$

14.)  $\left(\frac{3x^2}{2y^2}\right)^5$

15.)  $\left(\frac{3x}{4x^2}\right)^2$

## Exponents Operations Worksheet #3

Name \_\_\_\_\_ Per \_\_\_\_\_

## Division

Part 1: Expand each expression to find the quotient.

1.)  $\frac{2^4}{2^3} =$  \_\_\_\_\_  $=$  \_\_\_\_\_

2.)  $\frac{3^2 5^5}{3 \cdot 5^2} =$  \_\_\_\_\_  $=$  \_\_\_\_\_

3.)  $\frac{x^8}{x^3} =$

4.)  $\frac{2^3 x^3 y^4}{2 \cdot xy^2 z} =$

Simplify to find the quotients.

6.)  $\frac{a^8}{a^3}$

7.)  $\frac{7^{11}}{7^8}$

8.)  $\frac{7 \cdot b^5}{b^4}$

9.)  $\frac{12 \cdot g^8 \cdot h^4}{g^3 \cdot h^5}$

Part 2: Simplify each expression.

10.)  $8^1 \cdot 8^3$

11.)  $t^4 \cdot t^4$

12.)  $x^5 \cdot x^9$

13.)  $3^4 \cdot x^3 \cdot x^5$

Find the product of the expressions.

14.)  $(6x^2)(4x^2)$

15.)  $(3x^3y^2)(-6y^5)$

16.)  $(5p^3)(-m^8p^2)$