

Definition of an exponent – An expression like x^n is called a power and is read “x to the nth power.” The variable x is called the base, and n is called the exponent. The exponent indicates the number of times the base is used as a factor.

Examples:

$$7^3$$

$$x^5$$

$$y^2w^4$$

Using the definition of exponents explore what happens when **like bases** are **multiplied**...

$$x^3 * x^8$$

$$2^4 * 2^2$$

$$(x^2y)(x^3y^4)$$

Can you generalize what has happened?

Using the definition of exponents explore what happens when **like bases** are **divided**...

$$\frac{x^9}{x^3}$$

$$\frac{2^8}{2^5}$$

$$\frac{y^2w^4}{y^2w^3}$$

Can you generalize what has happened?

What about coefficients?! What do we do with those?! What if I have to multiply and divide?!

$$2y * 3xy^8$$

$$\frac{-108z^5a^{10}}{81z^3a^4}$$

$$\frac{(10c^3)(25c^9)}{(150c)(-5c^7)}$$

Properties of Exponents: Multiply and Divide Practice

1. $x^3 * x^6 * x$

2. $a^3 * b^6 * a^7 * b^2$

3. $4c^8 * 8c^3$

4. $(k^9)(7k^3)$

5. $(-4d^4)(9d)$

6. $(5x^2)(2x)(-3x^7)$

7. $(2x^6y^2)(-9x^3y^5)$

8. $\frac{12^8}{12^6}$

9. $\frac{h^{15}j^{22}}{h^9j^{19}}$

10. $\frac{10r^{14}}{2r^8}$

11. $\frac{8c^5}{10c^2}$

12. $\frac{25y^{17}}{15y}$

13. $\frac{-32a^8b^{13}}{40ab^{10}}$

14. $\frac{-52f^5g}{-4f^9g^5}$

15. $\frac{18x^7y^7z^3}{(24x^3)(3x^2yz^2)}$

16. $(-f^{14}a^{19}l^{12}a^2)(-l^{10}a^3la)$

17. $\frac{-7a^5bc^6 * 16ab^2c}{28a^3bc^4}$

*18. $(-2x^5)^3$