

Start correcting your ws.

1. 13^0 1	7. -6^0 -1
3. $\frac{3}{3^{-4}}$ 243	9. $\frac{1}{8^0}$ 1
5. $-(7)^{-2}$ $-\frac{1}{49}$ $\frac{1}{(7)^2} = \frac{1}{49}$	11. $-(11x)^0$ -1

13. $3n^{-8}p^0 \frac{3}{m^8}$

Handwritten: A red circle around n^{-8} with an arrow pointing to the 8. A red arrow points from the 3 to the denominator m^8 .

17. $\frac{8^{-2}q^3r^{-5}}{64r^5} \frac{q^3}{64r^5}$

Handwritten: Red circles around 8^{-2} and r^{-5} with arrows pointing to 8 and r^5 respectively. A red circle around q^3 with an arrow pointing to the denominator $64r^5$.

15. $\frac{-3k^{-3}(mn)^3}{p^{-8}} \frac{-3p^8m^3n^3}{k^3}$

Handwritten: Red circles around k^{-3} and p^{-8} with arrows pointing to k^3 and p^8 respectively.

19. $\frac{11xy^{-1}z^0}{v^{-3}} \frac{11xv^3}{y}$

Handwritten: Red circles around v^{-3} and z^0 with arrows pointing to v^3 and 1 respectively.

$\frac{-3(mn)^3 p^8}{k^3}$

$-3k^{-3}$

$-3(k)^{-3}$

Evaluate each expression for $a = -4$, $b = 3$, and $c = 2$.

21. $3a^{-1}$ $-\frac{3}{4}$

$$\frac{3(-4)^{-1}}{\downarrow}$$

$$\frac{3}{-4}$$

23. $4a^2b^{-2}c^3$ $\frac{512}{9}$

$$\frac{4(-4)^2(3)^{-2}(2)^3}{\downarrow}$$

$$\frac{4(16)(8)}{(3)^2}$$

$$\frac{512}{9}$$

25. $-a^{-2}$ $-\frac{1}{16}$

$$-\frac{(-4)^{-2}}{\downarrow}$$

$$-\frac{1}{(-4)^2} = -\frac{1}{16}$$

Write each number as a power of 10 using negative exponents.

27. $\frac{1}{1000}$ 10^{-3} $\frac{1}{10^3} \rightarrow 10^{-3}$

Write each expression as a decimal.

29. 10^{-3} 0.001 $\frac{1}{10^3} = \frac{1}{1000}$

Multiplication Properties

1. When multiplying two bases that are the same, you add exponents.
Ex 1: $x^4 \cdot x^2 = x^{4+2} = x^6$
 ~~$xxxx \cdot xx$~~

2. Even if the base is a constant, add the exponents. Keep the base the same.
Ex 2: $3^2 \cdot 3 \cdot 3^4 \cdot 3^2 \cdot 3^9$

3. Multiply the coefficient and add the exponents with the same base.
Ex 3: $3x^4y \cdot 5x^2 = 15x^6y$
 $(3 \cdot 5)(x^4x^2)(y)$



Multiplication Properties

$$(2x^2)^5$$

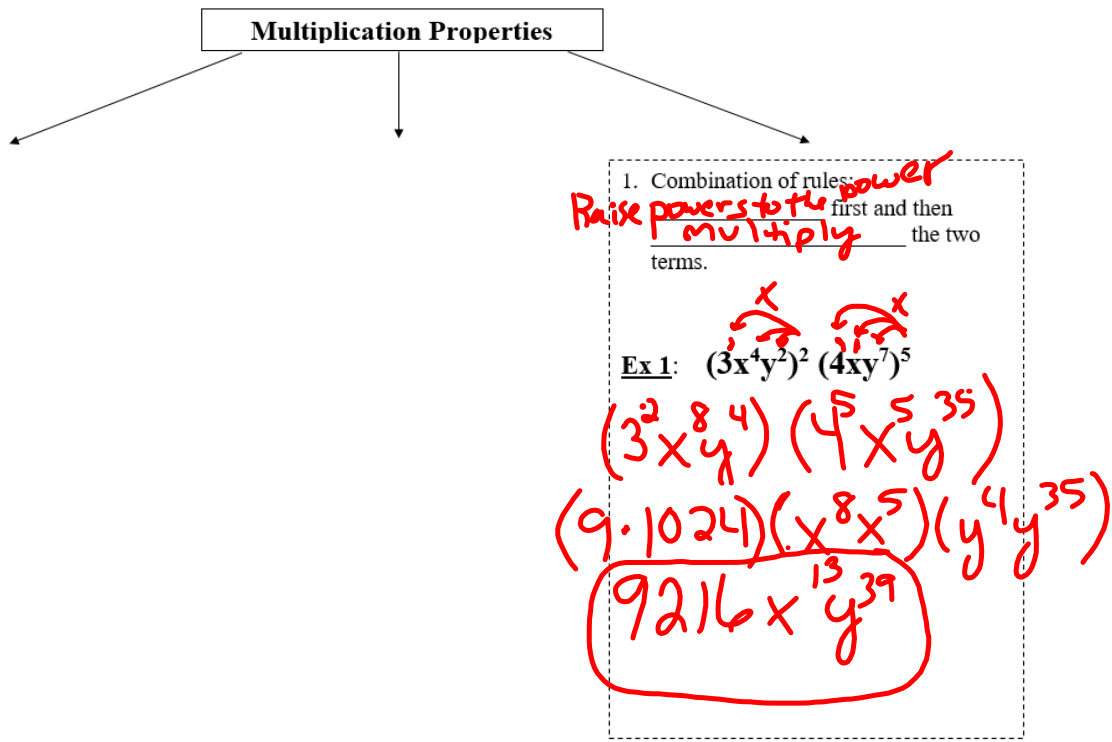
1. When raising a power to another power you multiply exponents. Raise the coefficient to the power also.

Ex 1: $(2x^2)^5 = (2^5)(x^2)^5 = 2^5 x^{10} = 32x^{10}$

2. When raising a fraction to a power you raise both the numerator and the denominator to the power

Ex 1: $\left(\frac{3}{4}\right)^2 = \frac{3^2}{4^2} = \frac{9}{16}$

$$\frac{3 \cdot 3}{4 \cdot 4}$$



Dividing Exponents

1. When dividing two bases that are the same, you Subtract exponents.

Ex 1: $\frac{x^5}{x^2} = x^{5-2} = x^3$

WHY???

1. When dividing two bases that are the same, you Subtract exponents with the same base and Simplify the coefficients.

Ex 1: $\frac{15x^9}{3x^2} = \frac{15}{3} \cdot \frac{x^9}{x^2} = 5x^7$

Ex 2: $\frac{3x^9y^3}{9x^2} = \frac{1x^7y^3}{3} = \frac{x^7y^3}{3}$

Combinations of Exponent Rules



Ex 1: $\frac{(12x^5)^2}{2a^3x^7} = \frac{144x^{10}}{2a^3x^7} = \frac{72x^3}{a^3}$

Ex 2: $\frac{(10c^2x^5)^2}{5c^{30}x^7} = \frac{100c^4x^{10}}{5c^{30}x^7} = \frac{20x^3}{c^{28}}$

Remember:

You are not finished simplifying if....

1. The same variable is repeated
2. There are any negative exponents
3. There are any zero exponents
4. The coefficients have common factors
5. There are parentheses remaining

Homework

Watch Section 1 Topic 5 Algebra Nation Video
and fill out pages 13-16 in AN workbook.