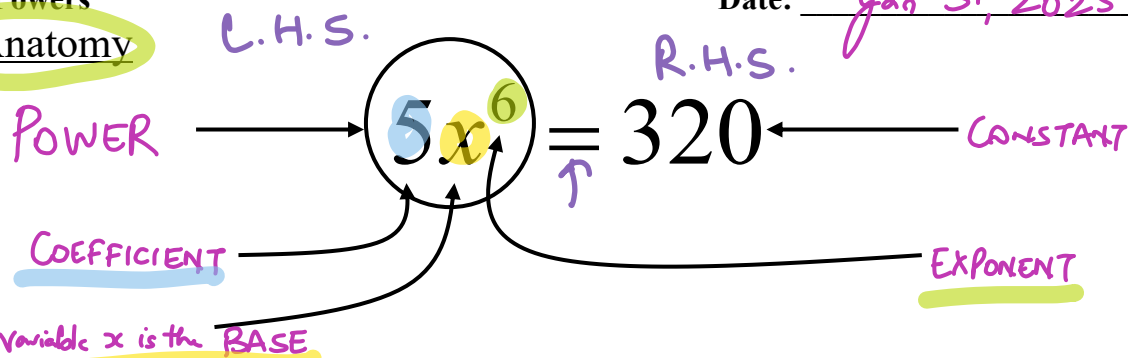


Math 11

Unit 0 – Math Skills Review

Lesson 2: Powers

Power AnatomyName: Mrs. JankDate: Jan 31, 2025Simple Power Problems

a.) $2^4 = 2 \times 2 \times 2 \times 2 = 16$

b.) $(-2)^4 = (-2)(-2)(-2)(-2) = 16$

c.) $-(2)^4 = -16$

d.) $-(-2)^4 = -(16) = -16$

Adding and Subtracting Powers

a.) $3x^6 + 7x^6 = 10x^6$

b.) $8x^4 - 2x^7 = 8x^4 - 2x^7$

c.) $-8x^6y - 1x^6y = -9x^6y$

d.) $18x^3z - 6x^2z = 18x^3z - 6x^2z$

Take Home Message #1

LIKE TERMS. 😊

You can only add or subtract powers that have the same combination of variables and exponents

Multiplying and Dividing Powers

a.) $(x^5)(x^6) =$

$$\begin{aligned} & x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \\ & = x^{11} \end{aligned}$$

b.) $-(ax^4)(a^3x^{19}) = -a^4x^{23}$

c.) $(-10b^2c^5)(13bc^8) = -130b^3c^{13}$

d.) $\frac{x^{16}}{x^7} = \frac{\cancel{x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x}}{\cancel{x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x}} = x^9$

e.) $\frac{14x^5}{-2x^3} = -7x^2$

$$\text{f.) } \frac{18x^3y^5z^3}{12w^4x^8y^5} = \frac{-3z^3}{2x^5w^4} = \frac{-3z^3}{2x^5w^4}$$

e.) $14^{500} \div 14^{498} = 14^{500-498} = 14^2 = 196$

f.) $16^5 \div 2^4 = (2^4)^5 \div 2^4$
 $= 2^{20} \div 2^4$
 $= 2^{16}$

Take Home Message #2

When you multiply powers, you ADD the exponents. When you divide powers, you SUBTRACT the exponents. You can only add or subtract the exponents if the BASE are the same.

Power to a Power

a.) $(2^5)^2 = 2^{10}$

b.) $(y^5)^9 = y^{45}$

$$\begin{aligned} \text{c.) } -(2x^3)^4 &= \\ &= -2^4 (x^3)^4 \\ &= -16x^{12} \end{aligned}$$

d.) $\frac{[(x^5)^2]^8}{(x^{78})} = \frac{x^{80}}{x^{78}} = x^{80-78} = x^2$

Take Home Message #3

When you raise a power to an exponent, you MULTIPLY the exponents.