

8.1: Exponents

“I WILL ...

Apply rules of Exponents.”

I. Definitions  $a^m$

A. \_\_\_\_\_: The term/variable of which is being raised upon

B. \_\_\_\_\_: The term/variable is raised by a term. AKA Power

II. Properties of Exponents

A. Product of a Power:  $a^m \cdot a^n = a^{m+n}$

B. Power of a Power:  $(a^m)^n = a^{m \cdot n}$

C. Power of a Product:  $(ab)^m = a^m b^m$

D. Negative Power Property:  $(a)^{-n} = \frac{1}{a^n}$

E. Identity Property:  $a^1 = a$

III. Model Problems

Ex 1: Solve $2^4 \cdot 2^5$	Ex 2: Solve $9 \cdot 9^8 \cdot 9^2$	Ex 3: Solve $(-5)(-5)^6$	Your Turn: Simplify $x \cdot x^6 \cdot x^2$
Ex 4: Solve $(2^3)^4$	Ex 5: Solve $(x^2)^3$	Your Turn: Simplify $[(-2)^5]^3$	

Ex 6: Simplify $(3x)^4$	Ex 7: Simplify $(3x^2)^4$	
Ex 8: Simplify $(-4x)^2$	Your Turn: Simplify $-(4x^3)^2$	
Ex 9: Simplify $(3x^3)^2 \cdot x^4$	Your Turn: Simplify $(3x^5)^3 (2x^7)^2$	
Ex 10: Solve $3^0$	Ex 11: Simplify $x^1$	Your Turn: Solve $-3^0$