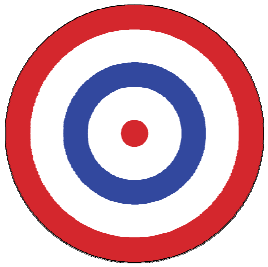

7-1. Zero & Negative Exponents

Today's Learning Target:

* I CAN simplify expressions with zero exponents
* I CAN simplify expressions with negative exponents

$$3^4 =$$

$2^4 =$

$2^3 =$

$2^2 =$

$2^1 =$

$2^0 =$

$2^{-1} =$

$2^{-2} =$

$10^4 =$

$10^3 =$

$10^2 =$

$10^1 =$

$10^0 =$

$10^{-1} =$

$10^{-2} =$

Simplify

$2^3 =$

$4^1 =$

$(-3)^3 =$

$-6^2 =$

$(1 + 3)^2 =$

$3 \cdot 2^2 =$

$(3 \cdot 2)^2 =$

$(\frac{1}{2})^2 =$

What is the difference?

$$(-6)^2 =$$

$$-6^2 =$$

Use your calculator to evaluate.

$4^0 =$

$9.702^0 =$

$(3 + 7)^0 =$

$(-8)^0 =$

$-3^0 =$

$0^0 =$

hmmm...
What about **negative** exponents?

Think back to the table.

$2^2 =$	4	$10^2 =$	100
$2^1 =$	2	$10^1 =$	10
$2^0 =$		$10^0 =$	
$2^{-1} =$		$10^{-1} =$	
$2^{-2} =$		$10^{-2} =$	

NegativeExpo's

- Don't make negative values.
- Are reciprocals of positive exponent.

$2^3 = 2 \cdot 2 \cdot 2$ $\qquad$ $2^{-3} =$

$x^2 = x \cdot x$ $\qquad$ $x^{-2} =$

Calculator

$$\frac{1}{2^{-2}} =$$

[1] [$A^b/_c$] [2] [Λ] [(-)] [2] [=]

Simplified Expressions:

- have positive exponents
- do not have parenthesis ( )
- have reduced fractions
- each variable appears only once

The zero exponent rule: (as long as a ≠ 0) $x^0 = 1$

$1^0 =$

$(3x)^0 =$

$(-2)^0 =$

$4x^0 =$

$x^0 =$

$-9^0 =$

The negative exponent rule: $x^{-n} = \frac{1}{x^n}$
(again, $a \neq 0$)

$2^{-2} =$

$4y^{-1} =$

$x^{-3} =$

$(-2)^{-3}h^4 =$

$(-3)^{-5} =$

$7^0z^{-7} =$

$a^6b^{-2} =$