Created by Mr. Lischwe

WARMUP 1/$\left(\textit{Reciprocal of } \frac{1}{8}\right)$

1. Expand: $8f^3$.
2. If I take 2^{30} and **double** it, what do I get? Write your answer as a power.
3. Evaluate both: $(-2)^6$ and $-(2^6)$.

2 VOLUNTEERS

- 1 to collect corrections
- 1 to collect extension

Table of Contents (2nd Semester)

Negative bases

Powers of -2...

$(-2)^1 = -2$
$(-2)^2 = 4$
$(-2)^3 = -8$
$(-2)^4 = 16$
$(-2)^5 = -32$
$(-2)^6 = 64$

A negative number to an odd power is negative.
A negative number to an even power is positive.

Do we really need the parentheses?

$(-3)^2$ **vs.** -3^2

IF THERE ARE NO PARENTHESES, YOU EVALUATE THE POWER FIRST AND THEN MAKE IT NEGATIVE, BECAUSE THE NEGATIVE SIGN IS NOT CONNECTED TO THE EXPONENT.

IMPORTANT:

$(-3)^2$ is 9
-3^2 is the same as $-(3^2)$
which is -9

Practice

1. Simplify: $(-10)^4$ $= (-10) \cdot (-10) \cdot (-10) \cdot (-10) = \mathbf{10,000}$
2. Simplify: -5^2 $= -(5 \cdot 5) = \mathbf{-25}$
3. Simplify: $\left(\frac{3}{2}\right)^3$ $= \left(\frac{3}{2}\right)\left(\frac{3}{2}\right)\left(\frac{3}{2}\right) = \frac{3 \cdot 3 \cdot 3}{2 \cdot 2 \cdot 2} = \mathbf{\frac{27}{8}}$
4. Evaluate $9x^2$ when x = 4. $= 9 \cdot 4^2 = 9 \cdot 16 = \mathbf{144}$
5. Evaluate $-a^6$ when a = 2. $= -(2)^6 = \mathbf{-64}$
6. Evaluate c^2 when c = -31. $= (-31)^2 = \mathbf{961}$
7. Is the value of $(-84)^{63}$ positive or negative? Explain how you know. **Negative; any negative number to an odd power is negative.**

Homework

- p. 19 (1-3, 5, 7, 9-12)
- NO CALCULATOR!
- (9-12 are challenging: be careful!!!)

Table of Contents (2nd Semester)

Multiplying & Dividing Powers

Objective:
Use exponent rules to simplify expressions

How could I solve this?

$$\frac{2^{10}}{2^5}$$

Activity: Learn & Teach

- There are two important rules to learn today.
- Half the tables will learn one rule and half the tables will learn the other
- Then I will pair tables together and each table will teach the other table their rule

THE RULES…

Multiplying Powers with the same base

- Keep the base, add the exponents

Dividing Powers with the same base

- Keep the base, subtract the exponents