

Section 5-1: **Monomials**

Lesson 16

Objective:

- Simplify Monomials with negative exponents.



Lesson 16: Monomials Negative Exponents

~ Rule ~

Negative Exponents: For any real number a , and any integer n , where $a \neq 0$

$$a^{-n} = \frac{1}{a^n} \text{ or } \frac{1}{a^{-n}} = a^n$$

For example: $\frac{1}{x^2}$ can be written as x^{-2}

Lesson 16: Monomials Negative Exponents

Example: Write the expression in a different way

1. $\frac{1}{x^{25}}$

2. $5y^{-7}$

Lesson 16: Monomials Negative Exponents

Properties of Powers

Suppose m and n are integers and a and b are real numbers. Then the following properties hold.

Power of a Power: $(a^m)^n = a^{mn}$

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



Power of a Quotient: $\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$ or $\frac{b^n}{a^n}$, $a \neq 0, b \neq 0$

Lesson 16: Monomials Negative Exponents

Simplify each expression by rewriting without parentheses or negative exponents.

Ex 1: $3x^{-4}$



Lesson 16: Monomials Negative Exponents

Simplify.

Ex 2: $5^{-2}x^{-3}y^0$



Lesson 16: Monomials Negative Exponents

Simplify.

Ex 3: $\frac{-6a^4}{2a^{-2}}$

Lesson 16: Monomials Negative Exponents

Simplify.

Ex 4: $\frac{8m^3n^2}{-4m^{-1}n^3}$



Lesson 16: Monomials Negative Exponents 

Simplify.

Ex 5: $\frac{8w^{-5}x^4}{(2w^3x^3)^0}$

Lesson 16: Monomials Negative Exponents

Simplify.

Ex 6: $\left(\frac{-4}{n}\right)^{-3}$



Lesson 16: Monomials Negative Exponents

Assignment 16

Due next class period

