Math 3 2.1 Exponent Properties Unit 2 Day 1

*SWBAT simplify exponents using the properties of exponents.*

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| --- | --- | --- |
| **Properties: Zero and Negative Exponents** | | |
| **Zero as an Exponent** | For every nonzero number a, | Examples: |
| **Negative Exponent** | For every nonzero number *a* and integer *n*, | Examples: |

What is the simplified form of each expression?

|  |  |  |
| --- | --- | --- |
| **Multiplying Powers with the Same Base** | | |
| To multiply powers with the same base, add the exponents. |  | Examples: |

What is the simplified form of each expression in the following parts?

1. 
2. 
3. 

|  |  |  |
| --- | --- | --- |
| **Dividing Powers with the Same Base** | | |
| To divide powers with the same base, subtract the exponents. |  | Examples: |

What is each expression written using each base only once?

1. 
2. 
3. 
4. 

|  |  |  |
| --- | --- | --- |
| **Raising a Product to a Power** | | |
| To raise a product to a power, raise each factor to the power and multiply. |  | Examples: |

What is the simplified form of each expression?

1. 
2. 
3. 

|  |  |  |
| --- | --- | --- |
| **Raising a Quotient to a Power** | | |
| To raise a quotient to a power, raise the numerator and the denominator to the power and simplify. |  | Examples: |
| To raise a quotient to a negative power, raise the numerator and the denominator to the power and simplify. |  | Examples: |

1. What is the simplified form of 
2. What is the simplified form of

|  |  |
| --- | --- |
| **Rational Exponents** | |
| **Rational Exponent:**   * We can rewrite expressions with rational exponents as radical expressions to help us evaluate them more easily * The denominator of the fraction is the index (root) of your radical and the numerator is the power of the base inside the radical * **Example:** | |
| **Example 1: Simplify each expression**  \*Turn it into a radical. The numerator is the power of the base, and the denominator is the number in the corner of the radical!  a)  a)  b)  b)  c)  c)  d)  d) | **Example 2: Write each expression as a**  **Rational Exponent**  \*The numerator is the power of the base, and the denominator is the number in the corner of the square root sign!  a) a)  b)  b)  c)  c)  d)  d) |