Math 1 **Rational Exponents** Unit 5

*SWBAT simplify rational exponents by converting them into radicals.*

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| **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:** |

**\*\*Fill out the chart below to refresh on our squares and cubes!\*\***

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| **Squared** |  |  |  |  |  |  |  |  |  |  |
| **Cubed** |  |  |  |  |  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **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) |

**Product of powers:** Keep the \_\_\_\_\_\_\_\_\_ the same and \_\_\_\_\_\_\_ the exponents.

1. ****
2. ****
3. 

**Challenge!** Using rational exponents, prove the following:



**Power of a power**: Keep the \_\_\_\_\_\_\_\_ the same and \_\_\_\_\_\_\_\_\_\_ the exponents.

1. 
2. 
3. 

**Rational Exponents** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Classwork

**Directions:** Evaluate each expression; resulting answers should not contain any radicals:

1)  2)  3) 

4)  5) x 6) 

7)  8)  9) 

10)  11)  12) 

**Directions:** Simplify the expressions. Write answers as a rational exponent (if needed).

1)  2)  3) 

4)  5)  6) 

7)  8)  9) 

10)  11)  12) 

**Directions:** Simplify the expression and eliminate any negative exponent(s):

1)  2) 

3)  4) 

5)  6) 

7)  8) 