We can rewrite any radical expression with rational exponents!

**What are rational exponents?**

\*Exponents that are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The rule for rewriting radical expressions with rational exponents is as follows...

You may also see this written as...

Special Cases:

**Example: Rewrite using rational exponents.**

|  |  |
| --- | --- |
| 1.) | 2.) |
| 3.) | 4.) |
| 5.) | |

**Example: Rewrite in radical form.**

|  |  |
| --- | --- |
| 6.) | 7.) |
| 8.) | |

**Example: Rewrite in radical form and simplify completely.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 9.) | | 10.) | | |
| **Property:** | **Rule:** | | **Example:** |
| Product Rule |  | |  |
| Quotient Rule |  | |  |
| Power Rule |  | |  |
| Negative Rule | \*Note: n0 | |  |
| Power of a product |  | |  |
| Power of a quotient | \*Note: m0 | |  |
| Zero exponent | \*Note: N0 | |  |
| Exponent of 1 |  | |  |

**What does it mean to simplify?**

\* \_\_\_\_\_\_\_\_\_\_ the property(s) of exponents.

\* \_\_\_\_\_\_\_\_\_\_ rational exponents as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and simplify if possible.

\* We can NEVER leave \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ exponents or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ exponents (these are Radicals) in the denominator!

* If you end up with a rational exponent in the denominator, \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in radical form and then \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the denominator.

**Examples: Apply properties of exponents. Write your answer in simplest radical form when possible.**

|  |  |
| --- | --- |
| 11.) | 12.) |
| Note: | |
| 13.) | 14.) |
| 15.) | 16.) |
| 17.) | 18.) |