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: n$\ne $0 |  |
| Power of a product |  |  |
| Power of a quotient | \*Note: m$\ne $0 |  |
| Zero exponent | \*Note: N$\ne $0 |  |
| 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.)  |