I can rewrite rational exponents as radicals. I can simplify radicals.

Rational Exponents & Radicals

Definition

A _____ is a root of a number. The _____ symbol is the radical symbol.
The nth root of k is written:

$$\sqrt[n]{k}$$

A term with a rational exponent can be written as a _____.

$$x^{\frac{\_}{\_}} = \sqrt{\quad} = \sqrt{\quad}$$

The _____ of the rational exponent becomes the _____ of the radical.

The _____ of the rational exponent becomes the _____.

Practice Exercises

Rewrite each expression in radical form.

1. $8^{4/3}$
2. $x^{5/9}$
3. $k^{3/2}$
4. $(-3)^{2/5}$
5. $2x^{1/5}$
6. $(2x)^{1/5}$

Rewrite each expression with rational exponents.

1. $\sqrt[7]{42^3}$
2. $\sqrt{r^3}$
3. $\sqrt[3]{11}$
4. $\left(\sqrt[4]{5}\right)^2$
5. $\sqrt{6}$
6. $\sqrt[5]{30m}$

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Properties of Radicals

$\sqrt[n]{a^n} =$

$\sqrt[n]{ab} =$

$\sqrt[n]{\frac{a}{b}} =$

$\sqrt[3]{6^3} =$

$\sqrt{9x} =$

$\sqrt[3]{\frac{8}{p}} =$

Simplifying Radicals

Radicals that are simplified have:

- no _____ in the radicand
- no _____ in the radicand
- no _____ in the radicand greater than the _____